A

CHECK-LIST

OF

MAMMALS

OF THE

NORTH AMERICAN CONTINENT
THE WEST INDIES

AND THE

NEIGHBORING SEAS

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SUPPLEMENT

BY

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EDITORIAL NOTE.

In 1904, the late D. G. Elliot published ' A Check-List of the Mammals of the North American Continent, the West Indies, and the Neighboring Seas.'[1] Shortly before his death he prepared the manuscript for a supplement to this work, carrying the subject to about the end of the year 1914. On examination, at the request of his daughter, Miss Margaret H. Elliot, this manuscript was found to be practically ready for the press, and was submitted by her to the authorities of the American Museum of Natural History for publication at her expense, under the auspices of the Museum, provided it proved acceptable. It is here presented as written, with only such revision and verification of references as the circumstances of posthumous publication naturally require.

The original edition of the Check-List gave fully the bibliographical references required in a modern check-list, together with the type localities and geographic distribution of the forms included, and also references to his previous works[2] where full descriptions of the forms are given. The species and subspecies included in the Supplement have for the most part been described since the publication of his earlier works, on which the Check-List was based, and it was evidently the author's intention to make this publication not only a supplement to the Check-List, but a continuation of his preceding two manuals of the subject, by giving descriptions of forms added as well as the usual check-list matter. As known to his fellow-workers, it was his custom to base his descriptions on the type specimens of the species and subspecies involved, instead of compiling from the original descriptions. For this reason the descriptive portion of this supplement is incomplete, in cases where the type specimens chance to be in foreign museums or in the museums of the Pacific coast and Canada. Descriptions of some of the forms published in 1914 had also not been completed, especially with reference to the measurements of the skulls. The Editor regrets that it proved impracticable to have these blanks

[1] Field Columbian Museum | Publication 105 | Zoölogical Series Vol. VI | A | Check List | of | Mammals | of the | North American Continent | the | West Indies | and the | Neighboring Seas | By | Daniel Giraud Elliot, F. R. S. E., etc. | Curator of Department | — | [Seal] Chicago, U. S. A. | 1905 — 8vo, pp. i–v, 1–761.

[2] Synopsis of North American Mammals, 1901, and Mammals of Middle America and the West Indies, 1905.

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filled, at least without causing much delay in the publication of the work, thus leaving a few of the descriptions incomplete.

It is to be noted that the Supplement contains many changes in generic nomenclature from that of the original Check-List, many groups treated in the latter as subgenera being here given the rank of genera, while the changes in generic names shown to be necessary since the publication of the Check-List are duly recorded in the present supplement.

J. A. Allen.

American Museum of Natural History.
January 8, 1917.

CLASS MAMMALIA.

Order **Marsupialia. Marsupials.**

Family **Didelphiidæ. Opossums.**

Genus Chironectes (1).

[1] **Chironectes panamensis** Goldman.

Chironectes panamensis Goldman, Smith. Misc. Coll., LXIII, 1914, No. 5, p. 1.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Geogr. Distr. Guatemala into Colombia.

Genl. Char. Similar to *C. minimus* of Guiana in size and color, but cranial characters different. Braincase longer; lambdoid crest projecting over foramen magnum; nasals longer, ends pointed, sides not constricted; fronto-parietal suture convex posteriorly; sagittal crest developed.

Color. Pattern as in *C. minimus*, grayish white, light brown and black; the crescentic band over eyes less distinct; black of forearms extending to first phalanges of the three middle digits; base of tail dark all around; rest like *C. minimus*. Ex type in United States National Museum.

Measurements. Total length, 651; tail, 386; hind foot, 72. Skull: Greatest length, 74.2; Hensel, 69.2; zygomatic width, 43.8; intertemporal width, 14.1; length of nasals, 33; palatal length, 45.6; length of upper molar series, 26.4; length of mandible, 57.2; length of lower molar series, 29.1. Ex type in United States National Museum.

Genus Marmosa (2).

Marmosa ruatanica Goldman.

Marmosa ruatanica Goldm., Proc. Biol. Soc. Wash., XXIV, 1911, p. 237.

Type locality. Ruatan Island, off north coast of Honduras.

[1] This separates the water opossum of South America from that of Central America, heretofore considered as one and the same species, and limits the range of *C. panamensis* from Guatemala into Colombia.

Genl. Char. Top of head smoky brown; broad line down center of face paler; orbital markings black, extending to nose; upperparts of body cinnamon; underparts cream color tinged with yellow; tail dusky, lightest on apical half; hands and feet whitish; ears dark brown. Ex type in United States National Museum.

Measurements. Total length, 338; tail, 188; hind foot, 24.5. Skull: Occipito-nasal length, 40.5; zygomatic width, 22.7; intertemporal width, 5.8; length of nasals, 17.7; palatal length, 21; length of upper molar series, 6; length of mandible, 28.7; length of lower molar series, 8. Ex type in United States National Museum.

Marmosa zeledoni Goldman.

Marmosa zeledoni Goldm., Proc. Biol. Soc. Wash., XXIV, 1911, p. 238.

Type locality. Navarro, Costa Rica.

Genl. Char. Near to *M. americana*, but more rufescent; interparietal narrower.

Color. Face light cinnamon-rufous; cheeks, sides of neck, flanks reaching nearly to middle of belly ochraceous-buff; upperparts cinnamon-rufous; throat, chest, middle of belly and inner side of limbs yellowish white; tail light brown; hands brownish; hind feet whitish; ear brown. Ex type in United States National Museum.

Measurements. Total length, 345; tail, 168; hind foot, 23. Skull: Occipito-nasal length, 33.9; Hensel, 29; zygomatic width, 19.2; intertemporal width, 6.5; length of nasals, 16.2; length of upper molar series, 11.7; length of palate, 18.2; length of mandible, 23.8; length of lower molar series, 12.7. Ex type in United States National Museum.

Marmosa isthmica Goldman.

Marmosa isthmica Goldm., Smith. Misc. Coll., LVI, 1912, No. 36, p. 1.

Type locality. Rio Indio, near Gatun, Canal Zone, Panama.

Genl. Char. Size large; skull similar to that of *M. chapmani*, but rostrum narrower; teeth and audital processes of alisphenoid smaller.

Color. Head and upperparts brownish cinnamon; middle of face lighter; orbital ring black; sides of neck and flanks ochraceous-buff; underparts creamy buff; tail above light brownish, beneath tawny ochraceous; hands brownish to base of fingers; toes and hind feet whitish; ears brown. Ex type in United States National Museum.

Measurements. Total length, 385; tail, 215; hind foot, 28.

Skull: Occipito-nasal length, 43; Hensel, 36.4; zygomatic width, 23.7; intertemporal width, 6.2; length of nasals, 20; palatal length, 21.5; length of upper molar series, 13.7; length of mandible, 30.6; length of lower molar series, 14.4. Ex type in United States National Museum.

Marmosa gaumeri Osgood.

Marmosa gaumeri Osgood, Proc. Biol. Soc. Wash., XXVI, 1913, p. 175.

Type locality. Yaxcaba, southwest of Chichen Itza, Yucatan, Mexico.

Genl. Char. Similar to *M. canescens*, but smaller. Skull small and narrow.

Color. Upperparts dull brownish fawn mixed with dusky, this hue extending down outer sides of fore and hind legs; orbital ring blackish brown; cheeks, underparts and inner side of limbs pale cream color; tail above brownish drab, paler beneath; feet cream white. Ex type in Field Museum of Natural History.

Measurements. Total length, 205; tail, 105; hind foot, 15. Skull: Greatest length, 304; zygomatic breadth, 17.3; interorbital constriction, 5.1; occipito-nasal length, 29.2; Hensel, 23; length of nasals, 12.2; palatal length, 16.1; length of upper tooth row, 12.3, including canines. Ex type in Field Museum of Natural History.

Marmosa mayensis Osgood.

Marmosa mayensis Osgood, Proc. Biol. Soc. Wash., XXVI, 1913, p. 176.

Type locality. Izamal, Yucatan, Mexico.

Genl. Char. Like *M. mexicana* but paler. Type in Field Museum of Natural History.

Color. Upperparts cinnamon mixed with dusky; flanks cinnamon; orbital ring black; underparts creamy white, base of hair on sides slate color; tail drab-brown. Type in Field Museum of Natural History.

Measurements. Total length, 228; tail, 118; ear, 15.

Marmosa invicta Goldman.

Marmosa invicta Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 3.

Type locality. Cana, eastern Panama.

Color. Upperparts blackish slate; (the type is rusty, however, from the occiput); between shoulders to the lower part of the dorsal

region and between eyes mouse-gray; flanks blackish slate; underparts and lower side of limbs silvery white; hairs on scrotum white to roots; chin, lips and lower part of cheeks white; antorbital spot black; wrists and ankles dusky; tail above dark, beneath paler. Ex type in United States National Museum.

Measurements. Total length, 248; tail, 137; hind foot, 19. Skull: Total length, 30.7; Hensel, 27.5; zygomatic width, 16; intertemporal width, 6.1; length of nasals, 13.8; length of upper molar series, 11.2. Ex type in United States National Museum.

Genus Peramys.

Peramys Lesson, Nouv. Tabl. Règne Anim. Mamm., 1842, p. 187. Type, *Didelphys brachyura* Schreber.

Peramys melanops Goldman.

Peramys melanops Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 20.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Color. Head and top of upperparts cinnamon, grading into almost black at rump; cheeks and sides cinnamon; throat and sides of belly mouse-color; a median stripe, buffy on neck, changes to white and broadens out until it occupies most of the chest and then narrows again from chest to root of tail; chin with a central white spot; hands, feet and tail black; ears dusky. Ex type in United States National Museum.

Measurements. Total length, 168; tail, 60; hind foot, 16.5. Skull: (broken). Total length, 26.8; Hensel, 25; length of nasals, 13.7; length of upper molar series, 9.5; length of mandible, 19.1; length of lower molar series, 9.6. Ex type in United States National Museum.

Genus Philander.

Philander Brisson, Reg. Anim., 1762, p. 207. Type *Didelphis philander* Linn.

Philander centralis Hollister.

Philander centralis Hollister, Proc. Biol. Soc. Wash., XXVII, 1914, p. 103.

Type locality. Talamanca, Costa Rica.

Genl. Char. Median facial stripe, orbital ring, stripe behind eye and side of nose Prout's-brown; muzzle, cheeks and forehead grayish

light buff; lengthened buffy white stripe from scapular region to middle of back; rest of upperparts, shoulders and flanks to lumbar region bright Hay's-russet; rest of back to tail, thighs and hind legs hazel; arms and entire underparts with inner side of hind legs colonial-buff; hands flesh-color; feet burnt-umber; tail at base blackish, slightly mottled on anterior portion, remainder flesh-color to tip. Ex type in United States National Museum.

Measurements. Total length, 530; tail, 270; hind foot, 40 (skin). Skull: Total length, 57.1; Hensel, 49; zygomatic width, 33; intertemporal width, 8.5; length of nasals, 21.4; length of upper molar series, 17.9; length of mandibles, 38.9; length of lower molar series, 20. Ex type in United States National Museum.

Philander laniger nauticus Thomas.

Philander laniger nauticus Thos., Ann. and Mag. Nat. Hist., 8th Ser., XII, 1913, p. 359.

Type locality. Gobernador Island, off the west coast of Panama. Type in British Museum.

Genl. Char. "Most nearly allied to *P. l. pallidus*, to which it has hitherto been referred, but the brown color usual in the members of the group less reduced, the general color being about sayal-brown in all four specimens as compared with the nearly completely gray color of eight examples of true *pallidus*. Head, little paler than body. No withers-mark perceptible. Under surface pale buffy. Fore arms and wrists buffy whitish. Hind limbs pale brown" (Thomas, *l. c.*).

I have not seen this species.

Philander laniger aztecus Thomas.

Philander laniger aztecus Thomas, Ann. and Mag. Nat. Hist., 8th Ser., XII, 1913, p. 359.

Type locality. San Juan de la Punta, Verz Cruz, Mexico. Type in British Museum.

Color. "Colors brightly contrasted. General color rich ferruginous. Crown grey to behind level of ears. Withers-streak large, white, prominent. Rump and outer sides of hips grey all across, the grey also passing on to the hairy part of the tail. Forearms and wrists prominently white. Hind legs ferruginous. Under surface and inner side of limbs buffy whitish, the hairs not darkened basally." (Thomas, *l. c.*).

Measurements. None given.

I have not seen this species.

Philander laniger fervidus Thomas.

Philander laniger fervidus Thos., Ann. and Mag. Nat. Hist., 8th Ser., XII, 1913, p. 359.

Type locality. Guatemala. Type in British Museum.

Color. "Colours very deep and strong throughout. General colour rich cinnamon-rufous, the lighter markings yellow instead of grey. Head yellow to level of ears. Withers-mark well developed, strongly contrasted, buffy yellow. Under surface pale buffy yellow, the belly tending more towards ferruginous. Fore limbs to wrists buffy yellow. Hind limbs deep ferruginous. Naked part of tail wholly dark brown to end." (Thomas, *l. c.*).

Measurements. None given.

Species not seen by me.

Philander nicaraguæ (Thomas).

Marmosa cinerea nicaraguæ Thos., Ann. and Mag. Nat. Hist., 7th Ser., XVI, 1905, p. 313.

Type locality. Bluefields, Nicaragua. Type in British Museum.

Genl. Char. Similar to *C. alstoni* Allen; fur shorter, the hairs of back 8–9 mm. long; tail very long. Skull as in *C. alstoni.*

Color. Above grayish brown; beneath cream-buff; hairs of chest, middle of abdomen and inguinal region buffy to their bases; hands and feet pale gray; tail blackish for three-fifths its length, remainder of tip white.

Measurements. Total length, 448; tail, 281; hind foot, 28.5; ear, 29. Skull: Basal length, 42.7; greatest breadth, 25; length of molars, 7.7.

Genus Metachirus (4).

Metachirus nudicaudatus dentaneus Goldman.

Metachirus nudicaudatus dentaneus Goldman, Smith. Misc. Coll., LVI, 1912, No. 36, p. 2.

Type locality. Gatun, Canal Zone, Panama.

Genl. Char. Similar to *M. n. colombianus*, but dentition heavier; zygoma lighter and first three upper molars more deeply emarginate.

Color. Top of head black; orbital rings and sides of muzzle blackish; cheeks, spot above eyes, and about ears ochraceous-buff; upperparts and outer side of hind legs wood-brown; dorsal line blackish; shoulders suffused with plumbeous, caused by the dark under fur showing; underparts and inner side of hind legs yellowish white; outer side of arms grayish tinged with buff; hands dusky, fingers and outer side of tarsus whitish; hind feet white; tail above dusky, beneath paler, tip white. Ex type in United States National Museum.

Measurements. Total length, 597; tail, 332; hind foot, 48. Skull: Occipito-nasal length, 61.2; Hensel, 56.9; zygomatic width,

31.7; intertemporal width, 9.3; length of nasals, 30; palatal length, 34.5; length of upper molar series, 21.5; length of lower molar series, 46.2. Ex type in United States National Museum.

Genus Didelphis (5).

Didelphis marsupialis insularis Allen.

Didelphis marsupialis insularis Allen, Bull. Am. Mus. Nat. Hist., XVI, 1902, p. 259; Elliot, Mamm. Middle Amer. and West Indies, F. C. M. Pub., IV, Pt. 1, 1904, p. 17, Zool. Ser.; *Id.*, Check L. Mamm. N. Amer. Cont. and West Indies, F. C. M. Pub., VI, 1905, p. 7, Zool. Ser.; Hollister, Proc. Biol. Soc. Wash., XXV, 1912, p. 93.

Type locality. Caparo, Island of Trinidad.

Geogr. Dist. Islands of Dominica, Grenada and St. Vincent, West Indies.

To the above-named islands, must be added Martinique, according to Hollister (*l. c.*), three specimens in all of this Opossum, now in the National Museum, having been procured there by Commodore Perry in 1862, and by F. Ober in 1878.

Order **Edentata. Edentates.**

Family **Bradipodidæ. Sloths.**

Genus Bradypus (7).

Bradypus ignavus Goldman.

Bradypus ignavus Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 1.

Type locality. Marraganti, near the head of tide water on the Rio Tuyra, eastern Panama, about two miles above Real des Santa Marias.

Genl. Char. Similar to *B. griseus* but more spotted above with white. Skull with the nasals shorter, and emarginate anteriorly.

Color. Facial lines and space about eyes black; remainder of face covered with short hairs whitish in color; ruff with rusty brown edgings; upperparts grayish drab spotted irregularly with white, most conspicuous on the rump; chin blackish, throat and upperpart of chest rusty brown; abdomen and inner side of limbs pale drab-gray; outer side of limbs similar to back. Ex type in United States National Museum.

Measurements. Total length, 641; tail, 47; hind foot, 132; Skull: Occipito-nasal length, 78.5; Hensel, 67.6; zygomatic width, 47.5; intertemporal width, 21.8; length of upper molar series, 20.5; length of mandible, 51.8; length of lower molar series, 21.5. Ex type in United States National Museum.

Family **Dasypodidæ. Armadillos.**

Subfamily **Dasypodinæ.**

Genus Dasypus.

Dasypus Linnæus, Syst. Nat., I, 1758, p. 50. Type by tautonymy *Dasypus novemcinctus* Linnæus.

Dasypus novemcinctus fenestratus Peters.

Dasypus fenestratus Peters, Monatsb. K. Preuss., Acad. Wiss. Berlin, 1864, p. 186.

Type locality. Costa Rica.

Dasypus novemcinctus hoplites G. M. Allen.

Dasypus novemcinctus hoplites G. M. Allen, Bull. Mus. Comp. Zoöl., LIV, 1911, p. 195.

Type locality. Hills back of Gouyave, Grenada, Lesser Antilles.

Dasypus novemcinctus texanus (Bailey).

Tatu novemcinctum texanum Bailey, N. Am. Fauna, No. 25, 1905, p. 52. Texas Armadillo.

Type locality. Brownsville, Texas.

Geogr. Dist. Southwestern Texas.

Genl. Char. Similar to *D. mexicanus;* dentition heavier; lachrymal bone larger and more triangular, and plates on forehead and wrists larger. Ex type in United States National Museum.

Measurements. Total length, 800; tail vertebræ, 370; hind foot, 100. Skull: Basal length, 81; occipito-nasal length, 100; length of nasals, 36; zygomatic breadth, 43; mastoid width, 29; length of upper molar series, 27; of lower molar series, 27. Ex type in United States National Museum.

Order **Cetacea. Cetaceans.**

Family **Physeteridæ. Toothed Whales.**

Genus Mesoplodon (23).

Mesoplodon mirum True.

Mesoplodon mirum True, Smith. Misc. Coll., LX, 1913, p. 1; *Id.* Proc. U. S. Nat. Mus., XLV, 1913, p. 651, pls. 52–57.

Type locality. Bird Island, Beaufort Harbor, North Carolina.

Genl. Char. "Teeth at the extremity of the mandible small, entirely concealed by the integument (in the adult female). Mandibular symphysis one-fourth the length of the mandible. No basirostral groove. External free border of the lacrymal bone one-half the length of the orbit; its anterior end curved upward and appearing on the superior surface of the skull where it joins the antero-external angle of the frontal plate of the maxilla. Maxillary prominences short and directed obliquely outward anteriorly, the extremity close to the maxillary notch. Maxillary foramina behind the premaxillary foramina. Frontal plates of maxillæ approximately one-half as broad as long."

Color. Upperparts slate-black; lower parts of flanks and underparts yellowish purple, spotted with black; middle of belly darker; in front of vent a grayish spot; fins slate-black like upperparts.

Measurements. Total length, 16 feet; width at flukes, 4 ft., 8 in.; tip of snout to origin of dorsal, 9 ft.; tip of snout to origin of pectoral; 3 ft. 8 in.; tip of snout to vent, 11 ft.; length of pectoral, 1 ft. 8 in.; greatest depth of body, 3 ft. 5 in. Skull: total length, 810 mm.; length of rostrum, 496; length from tip of rostrum to inferior border of pterygoids, —; width across center of orbits, 325; width across zygomatic processes, 375; breadth of middle of back, 60; length from posterior border of maxillary foramen to end of maxillary protuberance, 63; length of portion of vomer visible on palate, 162; length of mandible, 668; length of symphysis, 193; greatest height of mandible opposite coronoid process, 117. True, ex type in United States National Museum.

Order **Ungulata. Hoofed Quadrupeds.**

Family **Tayassuidæ. Peccaries.**

Genus Pecari.

Pecari Reichenbach, Bildergal. Thierw., Heft. 6, 1835, p. 1. Type by monotypy *Sus torquatus* Cuvier.

Tayassu albirostris spiradens Goldman.

Tayassu albirostris spiradens Goldm., Proc. Biol. Soc. Wash., XXV, 1912, p. 189.

Type locality. Talamanca, Costa Rica.

Genl. Char. Like *T. a. ringens:* facial white areas more extensive; molars broader, first lower premolars smaller; median frontal outline of braincase more arched; lower premolars narrowed anteriorly, and mandibular tooth rows more evenly tapering.

Color. Upperparts black coarsely mixed with tawny, the black showing mostly on back and rump, the tawny on head, neck, shoulders and flanks; muzzle and triangular area from mouth to nearly beneath ears buff; feet buffy. Ex type in United States National Museum.

Measurements. Skull: Greatest length, 280.5; zygomatic width, 120; intertemporal width, 65; length of upper molar series, 76.7; length of mandible, 196; length of lower molar series, 82.8. Ex type in United States National Museum.

Family **Cervidæ.**

Subfamily **Cervinæ.**

Genus Rangifer (38).

Rangifer excelsifrons Hollister.

Rangifer excelsifrons Hollister, Smith. Misc. Coll., LVI, No. 35, 1912, p. 5.

Type locality. Meade River, near Point Barrow, Alaska.

Genl. Char. Skull alone known. This is short and broad with a high braincase; facial angle about 45 degrees.

Color. As no skin was obtained, the color of the species cannot be described.

Measurements. Skull: Total length, 378; Hensel, 345; zygomatic width, 140; intertemporal width, 151.5; length of nasals, 119; palatal length, 230; length of upper tooth row, 92.5; length of mandible, 292; length of lower tooth row, 97.4; Ex type in United States National Museum.

This form would seem to be nearest to *R. grœnlandicus*, but the braincase is narrower although it has a similar elevation; more material is necessary before the status of this form can be satisfactorily established.

Rangifer fortidens Hollister.

Rangifer fortidens Hollister, Smith. Misc. Coll., LVI, No. 35, 1912, p. 3.

Type locality. Head of Moose Pass, branch of Smoky River, Alberta, Canada.

Genl. Char. Size large; color dark; teeth large; antler stout, greatly palmated. Skull, while generally exceeding in the size of all its parts, the largest skull of any described species of Caribou; the present one seems to differ in having the posterior internal cusp of both the third and fourth lower premolars separated from the rest of the pattern of the crown by a deep depression; the cusp-bearing ridge being at right angle to the tooth's longitudinal axis. Female normally, apparently without antlers.

Color. Head blackish brown; neck grayish brown; shoulders and body both above and beneath, brownish black; a small white mane upon the throat; small white patch on the rump; underparts black; groin white; legs and feet blackish brown, the latter with a white border around hoofs: tail brownish black with a white border. Ex type in United States National Museum.

Measurements. Total length, 2370; tail, 150; hind foot, 690. Skull: Total length, 447; occipito-nasal length, 348; Hensel, 398; zygomatic width, 156; intertemporal width, 125; length of nasals, 151; length of palate, 268; length of upper tooth row, 111; length of mandible, 333; length of lower tooth row, 117. Ex type in United States National Museum.

Rangifer caribou sylvestris (Richardson).

Cervus tarandus var. *B. sylvestris* Rich., Fauna Boreali Amer., I, 1829, p. 250; Hollister, Smith. Misc. Coll., LVI, No. 35, 1912, p. 4.

In this paper Mr. Hollister has elevated the animal from the southeastern shores of Hudson Bay, named by Richardson *sylvestris* (*l. c.*) to a distinct race, giving as its characters a darker color; hairs

brown to the roots; a longer and more slender skull; narrower rostrum; larger teeth, with, consequently, longer tooth rows, and longer nasals. The comparison was made with four skulls of adult Caribou from Manitoba and Keewatin, and ten (adult ?) from eastern Canada and Maine.

Genus Alces (39).

Alces columbæ Lydekker.

Alces columbæ Lydekker, The Field, London, 109, 1907, p. 182.

Type locality. "Ontario," Canada.

Alces americanus shirasi Nelson.

Alces americanus shirasi Nels., Proc. Biol. Soc. Wash., XXVII, 1914, p. 72.

Type locality. Snake River, 4 miles south of Yellowstone Park, Lincoln County, Wyoming.

Geogr. Distr. Northern Rocky Mountains in Wyoming, Montana and Idaho.

Genl. Char. Winter Pelage. Neck above, and back, pale rusty yellowish brown, washed with dusky on tips of hairs; ears paler; hoofs smaller.

Color. Top of head pale rusty brown; muzzle dusky brown, lips bordered with grayish white; upper part of neck and back pale yellowish brown, tips of hairs dusky; sides, upper part of limbs, and under side of body, except lower abdomen and inguinal region which are pale buffy, black; front legs from knees to hoofs, and lower part of hind legs dusky brown; under side of neck mixed black and rusty brown; ears behind dull brownish gray, front of ears buffy whitish. Type in United States National Museum.

Measurements. Total length, 2540; hind foot, 762; length of front hoof, 130 (Collector).

Genus Odontocœlus (41).

Odontocœlus rothschildi chiriquensis Allen.

Odocoileus (!) rothschildi chiriquensis Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 95.

Type locality. Boqueron, Chiriqui.

Color. Top of head and nose fuscous; sides of head ochraceous-buff; neck and upperparts have all the hairs tipped with light ochraceous, rest of hairs blackish; flanks and outer side of limbs light ochraceous; long hairs on rump ochraceous-orange; on each side

of the tail, on rump, a white space; chin white crossed by a blackish brown band; throat white; under part of neck, and abdomen light ochraceous-salmon; inguinal region white; inner side of fore legs to below knee white; tail above like back, beneath white. Ex type, female, in American Museum of Natural History.

Measurements. Total length, 2902; tail, 311; hind foot, 241; ear, 254 (not type). Skull: Total length, 212; occipito-nasal length, 177; Hensel, 181; zygomatic width, 81.4; interorbital width, 51.3; length of nasals, 59.1; length of upper molar series, 68.6; length of mandible, 165; length of lower molar series,[1] 71.5. Ex type in American Museum of Natural History.

The type, a female, was not fully adult, but the skin was the only one obtained. A number of skulls of males with the horns attached were procured. The antlers resemble those of *O. rothschildi* Thomas but are larger. The following are the measurements of male:

Skull: No. 18,957, as given by Dr. J. A. Allen: "Greatest length, 222; basal length, 200; greatest breadth, 88; nasals, length, 65; nasals, breadth, 23; muzzle to orbit, 112; breadth of braincase, 58; muzzle to anterior premolar, 65; alv. length of upper tooth row, 57; crown length, 60; alv. length of lower tooth row, 65."

Odontocœlus americanus louisianæ G. M. Allen.

Odocœlus (!) virginianus louisianæ G. M. Allen, Am. Nat., XXXV, 1901, p. 449.

Type locality. Mer Rouge, Morehouse Parish, Louisiana.

Genus Mazama.

Mazama Rafinesque, Amer. Month. Mag., I, 1817, p. 363. Type, *Mazama pita* Rafin. = *Cervus rufus* Illiger.

Mazama tema reperticia Goldman.

Mazama tema reperticia Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 2.

Type locality. Gatun, Canal Zone, Panama.

Genl. Char. Similar to *M. tema* but larger and less rufescent. Skull larger and correspondingly different in measurements.

Color. Top of head, middle of face and upper side of neck, blackish; space about eyes rusty red; cheeks drab-gray; upperparts dull cinnamon-rufous, median line darker; chin and throat white; under

[1] Last molar not fully developed.

side of neck drab-gray; chest and anterior portion of abdomen fawn color, posterior portion white; inner side of thighs white; a white spot on upper lip; tail above cinnamon-rufuous, beneath white; feet brownish drab. Ex type United States National Museum.

Measurements. Total length, 1.114; tail, 130. Skull: Total length, 184; occipito-nasal length, 162; Hensel, 162; zygomatic width, 80; intertemporal width, 41; palatal length, 107.4; length from arch to incisive foramina, 71.7; length of nasals, 59.5; length of upper molar series, 51.7; length of mandible, 141.3; length of lower molar series, 59. Ex type in United States National Museum.

Family **Antilocapridæ. Antelopes.**

Genus Antilocapra (43).

Antilocapra americana peninsularis Nelson.

Antilocapra americana peninsularis Nelson, Proc. Biol. Soc. Wash., XXV, 1912, p. 107.

Type locality. 45 miles south of Calmalli, Lower California, Mexico.

Genl. Char. Horns shorter, rough; molar series heavier than in *A. americana;* slight differences in color of pelage.

Color. Compared with *A. americana.* Like that species, but the black border on terminal half of ears is broader, and the terminal third of the outer side of ears is blackish, the tips being pure black; rufous area on top of tail extends forward as a well-marked bar dividing the white rump-patch. Size of the two forms about the same. Ex type in United States National Museum.

Measurements. Skull: total length, 287; occipito-nasal length, 237; Hensel, 249; length of nasals, 107.3; length of upper tooth row, 69.7; length from palatal arch to incisive foramina, 118.1; length of mandible, 173; length of lower tooth row, 72.8. Ex type in United States National Museum.

I cannot perceive any characters sufficient, in my opinion, to separate this animal from typical *americana.* Those mentioned by Mr. Nelson, both of color of coat and difference in skull, are individualistic rather than specific, and on comparing the type skull with those of typical *americana,* the molar series are not found to be any heavier. I therefore regard *peninsularis* as the same as *americana* of which it would be a synonym.

Family **Bovidæ. Oxen, Sheep, Goats.**

Subfamily **Rupicaprinæ.**

Genus Oreamnos (44).

In the Proceedings of the Biological Society of Washington, XXV, 1912, p. 185, Mr. Hollister in a paper on the species of this genus shows that the names of three must be changed as follows:

Oreamnos americanus americanus (Blainville).

Ovis montanus Ord, Guthrie's Geog., 2d. Amer. ed., II, 1915, p. 292 (*nec Ovis montana*, Schreb., 1804; *nec Ovis montana* Tiedemann 1908).

Oreamnos americanus missoulæ, emendation for *Oreamnos montanus missoulæ* Allen, Bull. Amer. Mus. Nat. Hist., 1904, XX, p. 20.

Oreamnos americanus columbiæ, emendation for *Oreamnos montanus columbianus* Allen, Bull. Amer. Mus. Nat. Hist., XX, 1904, p. 20.

Genus Ovis (45).

Ovis cervina californiana Douglas.

Ovis californianus Douglas, Zool. Journ., IV, 1829, p. 332.

Type locality. Near Mount Adams, Yakima County, Washington.

Genl. Char. Smaller than *O. cervina;* horns lighter, in shape like those of *O. stonei*, but with less spread.

As it was supposed that there were no typical examples of this species in any museum, this form was considered synonymous with *O. cervina*, but Mr. Hollister has stated, Proc. Biol. Soc. Wash., XXV, 1912, p. 187, that a specimen has been presented to the National Museum from the Methow River, Washington, and that it is a valid species.

Ovis canadensis gaillardi Mearns.

Ovis canadensis gaillardi Mearns, Bull. U. S. Nat. Mus., 56, Pt. 1 1907, p. 240.

Type locality. Gila Mountains between Tijanas Altas, and the Mexican Boundary Line, in Yuma County, Arizona.

Geogr. Distr. Low desert ranges south of the Gila, and east of the

Colorado River, south into Sonora, Mexico, as far as Seriland, opposite Tiburon Island in the Gulf of California.

Genl. Char. Size small, muzzle dark-colored; horns long and strongly incurved; no white on throat.

Color, Winter Pelage. Rump, belly and posterior surface of limbs white; rest of body with neck and head écru-drab, darkest on shoulders, hips and middle of back; vertebral stripe; tail dark brown; the white rump divided by a stripe of the same color. *Summer Pelage.* General color pale rusty buff, darkening to drab on neck.

Measurements. Total length, 1200; tail vertebræ, 120; ear from crown, 120; fore foot with hoof, 270; hind foot with hoof, 315; height at shoulders, 770; at hip, 870; length of horn, 163.

The type specimen is very young, and about half-grown, with the second and third molars not yet above the jaw. From a number of examples in the United States National Museum, the following description and measurements are taken from an adult male.

Color. Nose and lips white; head, cheeks and throat whitey brown; rest of neck and chest bistre, darkest on chest; middle of back grayish brown; rest of back and flanks pale brussels-brown with many white tips to the hairs, giving a shimmering effect; a white patch on rump, divided in the middle by a dark seal-brown line; underparts white; thighs and front part of limbs bistre, hind part white; tail bistre.

Measurements. Skull: Total length about 300; occipito-nasal length, 227; Hensel, 260; length of nasals, 124.6; length of upper molar series, 85.6; length of mandible, 222; length of lower molar series, 92.2; length of horns along curve, 825; circumference of horn at base, 363; spread of horns at tips, 695.

Ovis cervina sierræ Grinnell.

Ovis cervina sierræ Grinnell, Univ. Calif. Pub. Zool., X, 1912, p. 144.

Type locality. East slope of Mount Baxter, Sierra Nevada, Inyo County, California, altitude, 11,000 feet.

Ovis cervina texana Bailey.

Ovis canadensis texianus Bailey, Proc. Biol. Soc. Wash., XXV, 1912, p. 109.

Type locality. Guadalupe Mountains, El Paso County, Texas.

Genl. Char. Similar to *O. mexicanus* but darker. Chief characters the very narrow muzzle, nasals and palate. Horns of female long, thin and slender, molars heavy.

Color. Upperparts dull buffy brown; rump-patch pure white with a narrow medium dark line; nose whitish; belly whitish; whit-

ish line down inner side of legs to hoofs. Ex type in United States National Museum.

Measurements. Total length, 1530; tail broken; hind foot, 355; ear from notch, 90. Skull: Occipito-nasal length, 227; Hensel, 246; zygomatic width, 113; greatest width of nasals, 35; width of palate, between second molars, 42; length of upper tooth row, 90; length of lower tooth row, 92; width over orbits, 150; width at base of horns, 100. Ex type in United States National Museum.

Ovis cowani Rothschild.

Ovis cowani Rothsch., Proc. Zool. Soc. Lond., 1907, p. 238.

Type locality. Mountain chain near Mount Logan, British Columbia.

Order **Rodentia. Rodents.**

Family **Sciuridæ. Squirrels, Marmots.**

Subfamily **Sciurinæ.**

Genus **Sciurus** (50).

Subgenus **B. Baiosciurus.**

Sciurus deppei matagalpa Allen.

Sciurus deppei matagalpa Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 660.

Type locality. San Rafael del Norte, Nicaragua.

Genl. Char. Similar to *S. deppei* but upperparts yellowish brown instead of rusty brown.

Color. Head, entire upperparts, flanks and outer side of limbs, mixed antimony-yellow and black, the first color being restricted to the tips of the hairs, the dark one being the hue of the under fur; throat white; rest of underparts and inner side of limbs antimony-yellow, like the tips of the hairs on upperparts; tail above antimony-yellow and black, outer edge white, beneath mixed black and white, and edged with white; hands and feet antimony-yellow like outer side of limbs. Ex type in American Museum of Natural History, New York.

Measurements. Total length, 554; tail, 240; hind foot, 45.9. Skull: Total length, 48.9; Hensel, 38.9; zygomatic width, 29; intertemporal width, 15.3; length of nasals, 15.3; length of upper molar series, 8.2; length of mandible, 24.7; length of lower molar series, 8.7. Ex type in American Museum of Natural History, New York.

Subgenus **C. Guerlinguetus.**

Sciurus variabilis choco Goldman.

Sciurus variabilis choco Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 4.

Type locality. Cana, eastern Panama. Altitude 3,500 feet.

Genl. Char. Similar to *S. v. morulus* but darker.

Color. Top of head blackish; cheeks brownish buff; lips pale buff; upperparts light ochraceous-buff to tawny ochraceous lined with black; dorsal stripe from shoulders to base of tail black; shoulders and sides ochraceous-rufous; outer sides of forearms ochraceous-rufous mixed

with black; outer side of hind legs light ochraceous-buff; underparts and inner side of limbs ochraceous-rufous; (some specimens have white axillæ, pectoral and inguinal regions and on the center of abdomen); tail above blackish on basal fourth, then ochraceous-rufous with the tip black, beneath buff and black with a black submarginal stripe edged with ochraceous-rufous; hands and feet mixed blackish and buff; ears blackish. Ex type in United States National Museum.

Measurements. Total length, 444; tail, 209; hind foot, 61. Skull: Hensel, 41.1; zygomatic width, 22.7; intertemporal width, 18; length of nasals, 18.8; palatal length, 29.7; length of upper molar series, 9.8; length of mandible, 27.6. Ex type in United States National Museum.

Subgenus **G. Echinosciurus.**

Sciurus poliopus tepicanus Allen.

Sciurus poliopus tepicanus Allen, Bull. Am. Mus. Nat. Hist., XXII, 1906, p. 243.

Type locality. Rancho Palo Amarillo, near Amatlan de Cañas, Tepic, Mexico. Altitude, 5,000 feet.

Color. Head in front of ears to end of nose black with white dots intermixed; rest of crown and nape mixed warm buff and black; upperpart and middle of back and outer side of limbs grizzled gray; lower back and rump warm buff like nape; underparts and inner side of limbs white; tail above and below with the hairs ringed black and white, but with less black showing on the under than on the upper part; hands and feet white; a white patch behind ears. Ex type in American Museum of Natural History, New York.

Measurements. Total length, 600; tail, 300; hind foot, 60. Skull: Total length, 58.8; Hensel, 45.1; zygomatic width, 34.6; intertemporal width, 18; length of nasals, 16.6; length of upper molar series, 11.4; length of mandible, 30.2; length of lower molar series, 11.2. Ex type in American Museum of Natural History.

Sciurus socialis littoralis Nelson.

Sciurus socialis littoralis Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 87.

Type locality. Puerto Angel, Oaxaca, Mexico.

Geogr. Dist. Coastal hills of southern Oaxaca near Puerto Angel.

Genl. Char. Similar to but paler than *S. socialis.*

Color. Upperparts iron-gray like *S. socialis* but more whitish; nape-patch dark rufous; underpart and inner side of legs dark rufous; a patch of whitish behind base of ears; top of head iron-gray, around eyes dark rufous; cheeks whitish; tail, median part on both upper and

under side rufous, overlaid above by black and washed with whitish, Ex type in United States National Museum.

Measurements. Total length, 526; tail, 273; hind foot, 67. Skull: Occipito-nasal length, 58.8; Hensel, 45.5; zygomatic width, 34.5; intertemporal width, 17.3; length of nasals, 17.2; length of palate, 26; length of upper molar series, 10.8; length of mandible, 27.7; length of lower molar series, 11.5. Ex type in United States National Museum.

Sciurus boothiæ annalium Thomas.

Sciurus boothiæ annalium Thos., Ann. and Mag. Nat. Hist., 5th Ser., XVI, 1905, p. 309.

Type locality. Honduras. Type in British Museum.

Genl. Char. "As in *S. boothiæ*, but belly grey instead of white."

Color. "Above as in *boothiæ* but less heavily blackened. Under surface and inner side of limbs uniformly dull grizzled greyish (between 'drab-grey' and 'hair-brown'), not defined laterally from the colour of the sides. Ears with a narrow black edging; the small patch behind their posterior bases dull greyish white. Upper surface of hands and feet black. Tail-hairs black, annulated along the middle line below with dull whitish, and tipped with white, but less broadly than in true *boothiæ*."

Measurements. "Head and body 250 mm.; tail, 250; hind foot, s. u. 51, c. u. 55 (the second specimen larger: hind foot, s. u. 57, c. u. 61)."

"Length of upper tooth row, exclusive of small premolar, 10." (Thomas, *l. c.*).

I have not seen this species.

Sciurus variegatoides helveolus Goldman.

Sciurus variegatoides helveolus Goldm., Smith. Misc. Coll., LVI. No. 36, 1912, p. 3.

Type locality. Corozal, Canal Zone, Panama.

Genl. Char. Similar to *S. variegatoides* but paler on limbs and underparts.

Color. Top of head and back grizzled black and pale buff; muzzle and sides of head buffy gray; outer side of limbs, flanks, underparts, hands and feet pale buff; tail above at base grizzled like back, remainder black and white, the latter hue on tips of hairs; beneath ochraceous-buff in the center bordered with black with an outer edging of white; ears with pale buff patches and broad black borders. Type in United States National Museum.

Measurements. Total length, 508; tail, 255; hind foot, 63. Skull: Occipito-nasal length, —; Hensel, —; zygomatic breadth, 34.2; intertemporal width, 21; length of nasals, 19.3; palatal length, 26.7. Type in United States National Museum.

[1] Genus Microsciurus.

Microsciurus Allen, Bull. Am. Mus. Nat. Hist., VII, 1895, p. 332. Type *Sciurus alfari* Allen.

Microsciurus alfari venustulus Goldman.

Microsciurus alfari venustulus Goldm., Smith. Misc. Coll., LVI, 1912, p. 4.

Type locality. Gatun, Canal Zone, Panama.

Genl. Char. Similar to *M. alfari* but less red; nasals narrower, and jugal weaker.

Color. Top of head and cheeks cinnamon-rufous; upperparts and outer sides of limbs grizzled cinnamon-rufous, the hairs having subterminal reddish bands and black tips; underparts and under sides of limbs grayish brown suffused with cinnamon-rufous; hands and feet dark rusty brown; tail above grizzled black and cinnamon-rufous, with a broad edge of the latter color; beneath cinnamon-rufous and black, the latter predominating. Ex type in United States National Museum.

Measurements. Total length, 250; tail, 102; hind foot, 40. Skull: Occipito-nasal length, 36.5; Hensel, 26.9; zygomatic width, 23.2; intertemporal width, 14; length of nasals, 10.5; palatal length, 15; length of upper molar series (anterior premolar absent), 5.4; length of mandible, 8; length of lower molar series, 6.1. Ex type in United States National Museum.

Microsciurus isthmius vivatus Goldman.

Microsciurus isthmius vivatus Goldm., Smith. Misc. Coll., LX, 1912, No. 2, p. 4.

Type locality. Near Cana, in the Pirri range of mountains, eastern Panama. Altitude 3500 feet.

Genl. Char. Similar to *M. isthmius* but paler, more olivaceous; underparts orange-buff, not ferruginous.

Color. Head and upperparts and outer side of limbs orange-buff, palest on cheeks; underparts and inner side of arms orange-buff, palest on middle of belly, and darkest on inner side of hind legs where the dark under fur shows through; hands and feet tawny-ochraceous; tail above grizzled black and buff, beneath tawny-ochraceous; marginal stripe black edged with grayish buff, tip black. Ex type in United States National Museum.

Measurements. Total length, 260; tail, 113; hind foot, 38.

[1] Proposed as a subgenus by Dr. Allen (*l. c.*) and so employed in the Check-List, p. 60, but raised to full generic rank by Goldman (*l.c.*).

Skull: Occipito-nasal length, 38.2; intertemporal width, 13.4; zygomatic width, 22.5; length of nasals, 10.7; length of upper molar series, 6.1; length of mandible, 17.2; length of lower molar series, 6.2. Ex type in United States National Museum.

[1] Genus Eutamias.

Eutamias Trouessart, Cat. Mamm. in Bull. Soc. d'Études Sci. d'Angers, X, 1880, p. 86. Type, *Sciurus striatus asiaticus* Gmelin.

Eutamias merriami meridionalis Nelson and Goldman.

Eutamias merriami meridionalis Nels. and Goldm., Proc. Biol. Soc., XXII, 1909, p. 23.

Type locality. Aguaje de San Esteban, about 25 miles northwest of San Ignacio, Lower California.

Genl. Char. Similar to *E. m. obscura*, but smaller and grayer.

Color. Top of head grizzled gray and brown and bordered with reddish brown; reddish brown stripe through eye, and one from cheek to below eye; dorsal stripe rusty brown becoming blackish on lower back; middle pair of stripes rusty brown like median; inner pair of light stripes gray; outer pair paler gray; flanks and outer side of arms pale buff; rump and outer side of legs pale grizzled gray; hands and feet and front of arms pale gray tinged with buffy; tail above blackish washed with buffy gray and margined with white, beneath rusty-rufous with a black margin edged with white. Ex type in United States National Museum.

Measurements. Total length, 237; tail, 117; hind foot, 33. Skull: Occipito-nasal length, 35.4; Hensel, 28.7; zygomatic width, 18.2; intertemporal width, 12; length of nasals, 9.6; length of upper molar series, 5.2; length of mandible, 16.2; length of lower molar series, 5. Ex type in United States National Museum.

Eutamias ludibundus Hollister.

Eutamias ludibundus Hollister, Smith. Misc. Coll., LVI, No. 26, 1911, p. 1.

Type locality. Yellowhead Lake, British Columbia. Altitude, 3700 feet.

Genl. Char. Nearest to *E. luteiventris* but larger, flanks darker; yellow on underparts absent.

Color. Top of head, rump and outer side of hind legs grizzled hair-brown; five black dorsal stripes; two inner light stripes grayish;

[1] Employed as a subgenus in the Check-List, p. 85.

outer pair mixed white and grayish; facial stripes brownish black; cheeks, shoulders, flanks, and outer side of fore legs, dark cinnamon; underparts whitish, tinged on sides of belly with cinnamon-tawny; tail above mixed black and dark buff, lateral black band bordered with olive beneath, central portion russet; hands and feet wood-brown; ears on outer side blackish, inner side brownish. Ex type in United States National Museum.

Measurements. Total length, 222; tail, 96; hind foot, 34. Skull: Occipito-nasal length, 33.4; Hensel, 26.7; zygomatic width, 19.6; intertemporal width, 7; length of nasals, 10; length of upper tooth row, 5.2; length of mandible, 17.4; length of lower tooth row, 15.1; Ex type in United States National Museum.

Eutamias amœnus propinquus Anthony.

Eutamias amœnus propinquus Anthony, Bull. Am. Mus. Nat. Hist., XXXII, 1913, p. 6.

Type locality. Ironside, Malheur County, Oregon.

Genl. Char. Similar to *E. amœnus*, but the orange hue in the pelage generally darker and richer.

Color. Facial stripes dark orange inclining to black; stripe behind eye almost wholly black; top of head mixed buff and black; sides of neck, shoulders, flanks and hips ochraceous-orange; five black dorsal stripes; inner pair of light stripes ochraceous, outer pair buffy white; rump grayish; underparts and inner side of limbs buffy white; tail above with two black lateral stripes, central part mixed orange and black, beneath, ochraceous-orange, tip black, hairs tipped with ochraceous-orange; hands and feet warm buff. Ex type in American Museum of Natural History.

Measurements. Total length, 207; tail, 90; hind foot, 32. Skull: Occipito-nasal length, 32.4; Hensel, 25.3; zygomatic width, 18; intertemporal width, 6.9; length of nasals, 10; length of upper molar series, 5.4; length of mandible, 13.4; length of lower molar series, 5.8. Ex type in American Museum of Natural History.

The examples of this form were obtained in August and September, mostly during the latter month, and all are in fresh pelage. Specimens of *E. amœnus* in the same pelage are practically indistinguishable, but as a rule the Ironside examples are darker, a deeper orange. It would be interesting to know if they assume the gray pelage of *amœnus* at any season of the year.

Eutamias nexus (Elliot).

Tamias nexus Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 233.

Type locality. Coyotes, State of Durango, Mexico.

Geogr. Dist. State of Durango, Mexico. Range unknown.

Genl. Char. Darker generally than either *T. bulleri* or *T. durangæ.* Light dorsal stripes reddish not gray; rump and thighs much darker; light face-stripes not so pure white; underparts mostly plumbeous on sides and belly, not white, and middle of tail beneath chestnut, not buff nor ochraceous-buff as in the other forms named.

Color. Top of head iron-gray, black stripe from nose above eye nearly to ear, and one from nose to eye becoming dark chestnut behind eye to ear; yellowish white stripe from nose between the black ones becoming a narrow line above eye and a broader one beneath eye; broad chestnut stripe from nose across cheeks to beneath ear. Grayish white patches behind ears; back of neck, shoulders, flanks, upper side of arms from wrists and thighs to ankles dark gray tinged on shoulders and flanks with yellowish; median black dorsal stripe from head to root of tail bordered on either side with a rufous and gray stripe, followed by a blackish chestnut stripe, succeeded by an outermost stripe of ochraceous, the outermost of all being dark chestnut. There are thus five dark stripes and four lighter ones, the middle pale ones being so tinged with red as to give the dorsal region a chestnut hue. Rump rufous; underparts from chin to and including breast white, remainder plumbeous with a whitish line through center of abdomen. Tail above black edged with white, beneath chestnut bordered with black and edged with white, tip black also edged with white. Hands and feet whitish gray; ears externally black on anterior half, gray on posterior. Ex type in Field Museum of Natural History.

Measurements. Total length, 235; tail, 91; hind foot, 27; ear, 21. Skull: Occipito-nasal length, 38; Hensel, 30; interorbital construction, 9; zygomatic width, 21; mastoid breadth, 17; palatal length, 16; length of nasals, 12; width of rostrum posteriorly, 7; length of upper molar series, 6; length of mandible to tip of incisors, 23; length of lower molar series, 6.

Eutamias pallidus cacodemus Cary.

Eutamias pallidus cacodemus Cary, Proc. Biol. Soc. Wash., XIX, 1906, p. 89.

Type locality. Sheep Mountain, Big Bad Lands, Fall River County, South Dakota.

Genl. Char. Size somewhat larger than *E. pallidus* Allen, color paler.

Color. Forehead gray; facial stripes pale buffy ochraceous; sides and back of neck and flanks grayish white, slightly tinged with buff; rump grayish white; median dorsal stripe blackish mixed with ochraceous; lateral stripes pale ochraceous-buff, tinged with olive; middle

pair of light stripes cream-gray, outer pair white; underparts white; tail beneath, cream color, narrow submarginal band black, hairs on edge tipped with white, above mixed black and white, the hairs being white banded with black; hands and feet grayish white. Ex type in United States National Museum.

Measurements. Total length, 210; tail, 101; hind foot, 34. Skull: Occipito-nasal length, 32; Hensel, 24.1; zygomatic width, 17.5; intertemporal width, 6.8; length of nasals, 11.1; length of upper molar series, 5.5; length of mandible, 13.5; length of lower molar series, 5.5. Ex type in United States National Museum.

Eutamias atristriatus Bailey.

Eutamias atristriatus Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 129.

Type locality. Penasco Creek, 12 miles east of Cloudcroft, Sacramento Mountains, New Mexico. Altitude, 7400 feet.

Genl. Char. Like *E. operarius* but larger and darker. Skull narrower.

Color. Top of head grizzled brown and gray; two uppermost facial stripes blackish, lowest dark rufous; stripes between these whitish; sides of throat buff; shoulders grayish washed with buff; sides of neck in front of shoulders and flanks orange; rump and thighs dark brownish gray; arms buffy gray; underparts and inner sides of limbs buffy white; hands whitish, feet buff; tail above, the hairs deep buff at base, then black and tipped with white; beneath, ochraceous with black marginal band, the hairs tipped with ochraceous; ears black anteriorly, white posteriorly. Ex type in United States National Museum.

Measurements. Total length, 220; tail, 114; hind foot, 32. Skull: Occipito-nasal length, 33.9; Hensel, 26.1; zygomatic width, 18; intertemporal width, 73; length of nasals, 9.1; palatal length, 14.1; length of upper molar series, 4.7; length of mandible, 24.2; length of lower molar series, 4.9. Ex type in United States National Museum.

Eutamias cinereicollis cinereus Bailey.

Eutamias cinereicollis cinereus Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 130.

Type locality. Copper Cañon, Magdalena Mountains, New Mexico.

Genl. Char. Paler and grayer than *cinereicollis.*

Color. Top of head and nose mixed gray; nape, sides of neck and shoulders gray; face white with three rufous stripes, one bordering top of head, one from ear through eye to upper lip, and one from beneath ear to upper lip; three blackish stripes along middle of back, and a

dark chestnut one on upper edge of flanks; two middle pale stripes gray, outer pair white; rump and outer side of thighs and limbs gray; flanks buff; underparts white, dark under fur showing through; tail above black, tips of hairs white, their bases buff, chestnut on basal half of hairs, remainder black with white tips, beneath ochraceous with black marginal band with whitish hairs; hands and feet grayish, buff tinged; ears dusky in front and white behind. Ex type in United States National Museum.

Measurements. Total length, 225; tail, 91; hind foot, 33. Skull: Occipito-nasal length, 35.9; Hensel, 28.6; zygomatic width, 19.4; intertemporal width, 8.1; length of nasals, 9.5; palatal length, 14.6; length of upper molar series, 5.6; length of mandible, 16.1; length of lower molar series, 5.5. Ex type in United States National Museum.

Eutamias quadrivittatus animosus Warren.

Eutamias quadrivittatus animosus Warren, Proc. Biol. Soc. Wash., XXII, 1909, p. 105.

Type locality. Irwin's Ranch, Tp. 29 S., R. 52 W., Las Animas County, Colorado. Altitude 5,000 feet.

Genl. Char. Pelage very pale in color.

Color. Top of head and shoulders gray; facial stripes narrow, blackish; post-auricular spot large, whitish; flanks grayish; median dorsal stripes blackish, bordered with rufous or pale chestnut; inner pair pale chestnut-rufous darkest posteriorly; outer pair and flanks pale yellowish rufous, outer pair of stripes barely distinguishable from sides; underparts white; tail above rusty and black, beneath pale bright rufous. Ex type in United States National Museum.

Measurements. Total length, 247; tail, 115; hind foot, 37. Skull: Total length, 36.3; Hensel, 27.2; zygomatic breadth, 19.8; intertemporal width, 12.9; length of nasals, 8; palatal length, 15.8; length of upper molar series, 6; length of mandible, 16.6; length of lower molar series, 9.3. Ex type in United States National Museum.

Eutamias minimus caryi Merriam.

Eutamias minimus caryi Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 143.

Type locality. Medano Ranch, San Luis Valley, Colorado.

Genl. Char. Like *T. minimus* but paler.

Color. General hue pale gray; inner pair of light stripes pale gray; top of head gray tinged with brown; rest of upperparts and inner pair of light stripes pale gray; outer pair white; median stripe pale brown, becoming black in center of back; other stripes pale brown darkest posteriorly; thighs gray; feet and hands whitish; flanks pale

buff; tail above, the hairs are buff at base, then black and tipped with buff; beneath, dark buff in center with marginal brownish black bands and buffy white tips. Ex type in United States National Museum.

Measurements. Total length, 194; tail, 87; hind foot, 30. Skull: Occipito-nasal length, 30; Hensel, 24.2; zygomatic width, 17.3; intertemporal width, 6; length of nasals, 10.8; palatal length, 12.7; length of upper molar series, 5; length of mandible, 11.2; length of lower molar series, 5.2. Ex type in United States National Museum.

Genus Citellus (52). Spermophiles.

Subgenus A. [1] Ammospermophilus.

Citellus leucurus insularis (Nelson and Goldman).

Ammospermophilus leucurus insularis Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 24.

Type locality. Espiritu Santa Island, Lower California, Mexico.

Genl. Char. Similar to *C. leucurus* but larger; tail beneath grizzled with black.

Color. Top of head and upperparts of body and flanks fawn-color; a white stripe on each side of back; shoulders and outer side of hind legs dull fawn-color; cheeks, side of neck, lower parts of flanks whitish; tail above blackish with white intermixed, and a white subterminal band; beneath whitish grizzled with black and bordered with black. Type in United States National Museum.

Measurements. Total length, 232; tail, 77; hind foot, 36. Skull: Total length, 41.8; Hensel, 32.4; zygomatic width, 24.6; intertemporal width, 10.5; length of nasals, 12.6; length of palate, 18.6; length of upper molar series, 6.4; length of mandible, 18.4; length of lower molar series, 7.1. Ex type in United States National Museum.

Subgenus C. Ictidomys.

Citellus tridecemlineatus hollisteri Bailey.

Citellus tridecemlineatus hollisteri Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 131.

Type locality. Sacramento Mountains, New Mexico. Altitude, 8000 feet.

[1] I fail to find any distinctions in this subgenus or in *Callospermophilus* so trenchant as to require their selection from the rest of the subgenera of *Citellus* for full specific rank.

Genl. Char. Smaller and darker than *C. alleni.* Zygomatic arches heavier, more widely spread.

Color. Nose yellowish brown; top of head and upperparts dark chestnut-brown; six whitish stripes from head to tail, and four rows of whitish spots between the pale stripes, the space between the median stripes having a buff-white line from the nape to beyond shoulders; outer side of arms and thighs deep buff; underparts, flanks, and inner side of limbs cream color; lips white; tail above like back at base, rest tinged black and whitish buff with a narrow marginal line of the same color; beneath chestnut at base, rest like upper side; hands buffy, feet whitish. Ex type in United States National Museum.

Measurements. Total length, 232; tail, 70; hind foot, 32. Skull: Occipito-nasal length, 37.2; Hensel, 28.5; zygomatic width, 10.7; intertemporal width, 7.8; length of nasals, 8; length of upper molar series, 3.2; length of mandible, 6.8; length of lower molar series, 5.9. Ex type in United States National Museum.

Subgenus D. **Callospermophilus.**

Citellus trepidus (Taylor).

Callospermophilus trepidus Taylor, Univ. Calif. Pub. Zool., V, 1910, p. 283.

Type locality. Head of Big Creek, Forest Mountains, Humboldt County, Nevada. Altitude, 8000 feet.

Citellus lateralis tescorum (Hollister).

Callospermophilus lateralis tescorum Hollist., Smith. Misc. Coll., LVI, 1911, No. 26, p. 2.

Type locality. Head of Moose Pass Branch of the Smoky River, Alberta, Canada. Altitude, 7000 feet.

Genl. Char. Nearest to *C. l. cinerascens* but larger, colors darker and richer.

Color. Nose, head, neck and shoulders Mars-brown; orbital ring whitish; upperparts grizzled brownish gray, darkest on rump; shoulders and outer sides of upperparts of arms blackish; lateral black stripes from shoulders have posterior half grizzled brownish gray; inner black stripes only go to middle of body; outer side of legs dark brown; tail above mixed black and buff; beneath with a central cinnamon area, with a lateral black band bordered with cinnamon-buff. Ex type in United States National Museum.

Measurements. Total length, 303; tail, 105; hind foot, 45. Skull: Occipito-nasal length, 46.3; Hensel, 36.7; zygomatic width,

29.4; intertemporal width, 12.8; length of nasals, 15.5; length of upper molar series, 9; length of mandible, 26.2; length of lower tooth row, 7.9. Ex type in United States National Museum.

Citellus lateralis arizonensis (Bailey).

Callospermophilus lateralis arizonensis Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 130.

Type locality. San Francisco Mountains, Arizona.

Gen'. Char. Larger than *C. lateralis;* somewhat darker in color, chestnut of thighs extending over feet to toes.

Color. Head and shoulders suffused with golden-chestnut; upperparts brownish gray; on each flank is a broad black and buff stripe; rump and outer side of thighs deep chestnut grading to yellowish and becoming buffy on the feet; underparts whitish; tail similar to that of *lateralis.* Ex type in United States National Museum.

Measurements. Total length, 292; tail, 102; hind foot, 44. Skull: Occipito-nasal length, 45.9; Hensel, 38.4; zygomatic width, 28.5; intertemporal width, 12.1; length of nasals, 16; palatal length, 21.5; length of upper molar series, 8.5; length of mandible, 22.3; length of lower molar series, 8.2. Ex type in United States National Museum.

Mr. Bailey says the tail "beneath always gray." I did not find this to be so on comparing a series of the present form with one of *C. lateralis.* The last-named species is paler than the present race generally, and the hind feet are much paler than the thighs, while the feet and thighs of this race are of the same color.

Subgenus E. **Colobotis.**

Citellus idahoensis Merriam.

Citellus idahoensis Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 135.

Type locality. Payette, at junction of Payette and Snake River, Idaho. Type in United States National Museum.

Genl. Char. Largest of the *C. mollis* group.

Color. Two phases of pelage: *Buff.* Top of head reddish; upper part of body suffused with pale buffy fulvous, the back spotted with buff; underparts buffy white; tail dark fulvous, with broad subapical black band; hands and feet buffy. *Gray.* Top of head grizzled gray; upperparts pale hoary gray, with a tinge of pale buffy, and the back dappled with whitish; tail like back, with black terminal band; eyelids white; hands and feet whitish; anterior rims of ears white. Ex type in United States National Museum.

Measurements. Total length, 263; tail, 61; hind foot, 35. Skull: Occipito-nasal length, 41; Hensel 35.2; zygomatic width, 27.3; intertemporal width, 10; length of nasals, 12.9; length of upper molar series, 9; length of mandible, 22.2; length of lower molar series, 8.4. Ex type in United States National Museum.

Citellus leurodon Merriam.

Citellus leurodon Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 136.

Type locality. Murphy, southwestern Idaho.

Genl. Char. Like *C. idahoensis*, tail shorter, underparts white.

Color. Almost exactly like the gray phase of *C. idahoensis*, but the flanks and underparts are white not buff, the black bases of the hairs showing and dulling the white; tail buffy gray above, darker beneath; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 233; tail, 47; hind foot, 33. Skull: Occipito-nasal length, 37.7; Hensel, 32.2; zygomatic width, 24.1; intertemporal width, 8.6; length of nasals, 12.7; length of upper molar series, 8.2: length of mandible, 19.6; length of lower molar series, 8. Ex type United States National Museum.

Citellus canus vigilis Merriam.

Citellus canus vigilis Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 137.

Type locality. Vale, eastern Oregon.

Genl. Char. No dappling on back; tail shorter and paler than in *C. idahœnsis*. Color more hoary-whitish than in *C. canus*. Skull larger and heavier.

Color. General hue hoary-whitish lined with black; flanks and underparts whitish; tail like back, terminal part black, hairs tipped with white; thighs to feet reddish; tail above, buff, hairs on margin and tips with white ends; beneath darker. Ex type in United States National Museum.

Measurements. Total length, 208; tail, 33; hind foot, 32. Skull: Occipito-nasal length, 37.5; Hensel, 31; zygomatic width, 25.6; intertemporal width, 10; length of nasals, 12.7; length of upper molar series, 7.7; length of mandible, 22; length of lower molar series, 7.3. Ex type in United States National Museum.

Citellus mollis artemisiæ Merriam.

Citellus mollis artemisiæ Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 137.

Type locality. Birch Creek, Idaho.

Genl. Char. Smallest of the *C. mollis* group; bullæ and teeth smaller, similar to *C. mollis*.

Color. Nose brown; head lightly grizzled; upperparts mottled, with hind neck and shoulders paler than lower dorsal region; outer side of arms whitish; thighs reddish; flanks and underparts white, black bases of hairs showing through; tail, above like back, with subterminal black band and white tip; beneath buff; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 219; tail, 45.5; hind foot, 26.4; (skin). Skull: Occipito-nasal length, 35.3; Hensel, 28.2; zygomatic width, 23; intertemporal width, 9.8; length of nasals, 10.5; length of upper molar series, 7.3; length of mandible, 20.4; length of lower molar series, 6.5. Ex type in United States National Museum.

Citellus mollis pessimus Merriam.

Citellus mollis pessimus Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 138.

Type locality. Lower part of Big Lost River, east central Idaho.

Genl. Char. Similar to *C. m. artemisiæ*, but larger and darker; rostrum larger; tooth row longer.

Color. Similar to *C. m. artemisiæ* but generally darker on upper parts; underparts also the same in color except the present race has a slight buffy suffusion at base of tail; tail above black speckled with buff on basal half, edged and tipped with white; beneath ochraceous-buff, with marginal black band edged with white; feet and hands whitish. Ex type in United States National Museum.

Measurements. Total length, 246; tail to end of hairs, 60.8; hind foot, 24.4 (Skin); Skull: Occipito-nasal length, 36.7; Hensel, 29.8; zygomatic width, 23.5; intertemporal width, 9.5; length of nasals, 12.9; length of upper molar series, 8.2; length of mandible, 21.9; length of lower molar series, 7.5; Ex type in United States National Museum.

Citellus mollis washoensis Merriam.

Citellus mollis washoensis Merr., Proc. Biol. Soc. Wash., XXVI, 1913, p. 138.

Type locality. Carson Valley, western Nevada.

Genl. Char. Size larger; pelage grizzled gray like *C. canus*.

Color. Similar to *C. m. pessimus*, but with less ochraceous-buff on the upperparts which is gray and white spotted; underparts buffy; tail very short, ochraceous-buff above, paler beneath; hands tinged with buff, feet whitish. Ex type in United States National Museum.

Measurements. Total length, 258; tail, 50; hind foot, 35. Skull:

Occipito-nasal length, 39.6; Hensel, 33.8; zygomatic width, 25; intertemporal width, 9.6; length of nasals, 10.6; length of upper molar series, 8.4; length of mandible, 23.3; length of lower molar series, 7.5. Ex type in United States National Museum.

Subgenus F. **Otospermophilus.**

Citellus variegatus juglans Bailey.

Citellus variegatus juglans Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 131.

Type locality. Glenwood, New Mexico. Altitude, 5000 feet.

Genl. Char. Similar to *C. variegatus*, but skull broader, teeth smaller.

Color. Head rusty and black, becoming tawny near ears; ears black; hind neck, flanks behind shoulders gray; back between shoulders black and buff; rest of back ochraceous and cream spotted; underparts soiled whitish (some examples rusty ochraceous); hands and feet pale ochraceous; tail above has the hairs gray with subterminal black band, and a marginal band edged with whitish; beneath practically the same coloring. Ex type in United States National Museum.

Measurements. Total length, 500; tail, 230; hind foot, 65. Skull: Occipito-nasal length, 60.9; Hensel, 49.3; zygomatic width, 38; intertemporal width, 13.6; length of nasals, 22; palatal length, 28.5; length of upper molar series, 12; length of mandible, 36.8; length of lower molar series, 11.6. Ex type in United States National Museum.

Genus Marmota (54). Woodchucks.

Marmota ochracea Swarth.

Marmota ochracea Swarth, Univ. Calif. Pub. Zool., VII, 1911, p. 203.

Type locality. Forty-mile Creek, Alaska.

Marmota vancouverensis Swarth.

Marmota vancouverensis Swarth, Univ. Calif. Pub. Zool., VII, 1911, p. 201.

Type locality. Mount Douglas, Vancouver Island, British Columbia, Canada.

Marmota vigilis Heller.

Marmota vigilis Heller, Univ. Calif. Pub. Zool., V, 1909, p. 248.

Type locality. West shore of Glacier Bay, Alaska.

Marmota oxytona Hollister.

Marmota sibila Hollist., Smith. Misc. Coll., LVI, 1912, p. 1.

Marmota oxytona Hollist., Science, XXXIX, 1914, p. 251.

Type locality. Head of Moose Pass, Branch of the Smoky River, Alberta, Canada. Altitude, 7,200 feet.

Genl. Char. Larger than *M. caligata;* colors dark; cheeks ochraceous. Skull large; teeth a little smaller than those of species compared.

Color. Top of head and nape grizzled brown and black, top of nose and stripe on cheek black; forehead in center white; sides of neck ochraceous; shoulders and upper back the hairs are black at base then white and tipped with brownish black, giving a grizzled, light appearance to this part; lower back a grizzled brown, black and buff; throat ochraceous; rest of underparts brownish gray, becoming hazel at base of tail; tail above black bordered and tipped with mummy-brown; beneath all mummy-brown; hands and feet black, the hands with a few white hairs. Ex type in United States National Museum.

Measurements. Total length, 720; tail, 210; hind foot, 95. Skull: Occipito-nasal length, 103.8; Hensel, '88.2; zygomatic width, 67; intertemporal width, 15; palatal length, 50.5; length of nasals, 44; length of upper molar series, 22.8; length of mandible, 72.9; length of lower molar series, 20. Ex type in United States National Museum.

Marmota monax rufescens Howell.

Marmota monax rufescens Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 13.

Type locality. Elk River, Minnesota.

Genl. Char. Similar to *M. monax* but redder.

Geogr. Distr. Southern part of Minnesota, Wisconsin, Michigan, Ontario and the greater part of the State of New York.

Color. Upper parts from nape to lower back ochraceous-buff, and from middle of back to tail darker buff, all the hairs tipped with white; flanks like lower back; top of head blackish; cheeks and upper lip cream white, base of hairs black; outer side of limbs bright chestnut, slightly darker than limbs; tail blackish, hairs at base white-tipped, beneath black, tinged with chestnut; hands and feet black. Ex type in United States National Museum.

Measurements. Total length, average of five, 548; tail, 143; hind foot, 83. Skull: Occipito-nasal length, 85; Hensel, 77.3; zygomatic width, 64.7; intertemporal width, 17.7; length of nasals, 35; length of upper molar series, 20.7; length of mandible, 57.6; length of lower molar series, 20. Ex type in United States National Museum.

Marmota monax preblorum Howell.

Marmota monax preblorum Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 14.

Type locality. Wilmington, Massachusetts.

Geogr. Distr. Connecticut, north to Rutland, Vermont and Ossipee, New Hampshire, but how much farther its range may extend has not been ascertained.

Genl. Char. Very similar to *M. m. rufescens* but paler, light buff on upperparts, hairs white-tipped; top of head seal-brown; underparts pale chestnut; tail at root inclined to grayish, rest of tail above and below like that of *M. m. rufescens;* hands and feet black. Ex type in United States National Museum.

Measurements. Total length, 500; tail, 140; hind foot, 80. Skull: Occipito-nasal length, 87.8; Hensel, 76.3; zygomatic width, 57.4; intertemporal width, 17; length of nasals, 35.1; length of upper molar series, 17.7; length of mandible, 48.6; length of lower molar series, 17.7. Ex type in United States National Museum.

Marmota flaviventer parvula Howell.

Marmota flaviventer parvula Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 14.

Type locality. Jefferson, Nye County, Nevada.

Geogr. Distr. Known only from the Toyabe and Toquima Ranges, Nevada, but probably will be found in the other ranges in the central part of the State.

Genl. Char. Similar to *M. f. avara* but smaller and darker.

Color. Band above nose black; lips and chin whitish; top of head and nape dark chestnut; upperparts pale buff to middle of back, darker on lower back to tail, all hairs tipped with white; flanks like lower back; throat and middle of abdomen pale chestnut; chest deep buff; thighs and scrotum pale buff; cheeks black, white-spotted; arms buff; hands reddish, feet buff; tail above chestnut speckled sparsely with white on basal half; beneath blackish. Ex type in United States National Museum.

Measurements. Total length, 470; tail, 130; hind foot, 70. Skull: Occipito-nasal length, 72.2; Hensel, 62; zygomatic width, 48.6; intertemporal width, 19.3; length of nasals, 29.3; length of upper molar series, 18.6; length of mandible, 46; length of lower molar series, 18.3. Ex type in United States National Museum.

Marmota flaviventer nosophora Howell.

Marmota flaviventer nosophora Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 15.

Type locality. Willow Creek, 7 miles east of Corvallis, Montana. Altitude, 4000 feet.

Geogr. Distr. Northern Rocky Mountain region from Flathead Lake, Montana, south to the Wahsatch Mountains, Utah, and east to the Bighorn Mountains, Wyoming.

Color. Nose white with a black bar near tip; lips and chin white; top of head black, white intermixed; upper half of back and flanks golden-yellow; lower back with central portion black, hairs, white-tipped, remainder slightly darker than upper back; arms, hands and underparts burnt-sienna; thighs golden-buff, feet darker; tail above chestnut, beneath black margined with chestnut. Ex type in United States National Museum.

Measurements. Total length, 583; tail, 170; hind foot, 75. Skull: Occipito-nasal length, 79.3; Hensel, 78.8; zygomatic width, 53.2; length of nasals, 33; length of upper molar series, 20; length of mandible, 58.2; length of lower molar series, 13.4. Ex type in United States National Museum.

Marmota flaviventer luteola Howell.

Marmota flaviventer luteola Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 15.

Type locality. Woods P. O., in Medicine Bow Mountains, Wyoming. Altitude, about 7000 feet.

Geogr. Distr. Mountains of northern Colorado, and southeastern Wyoming, from the Laramie Mountains south to Park County, Colorado.

Genl. Char. Similar to *M. dacota* and *M. f. nosophora* but paler, less deeply ochraceous above; skull with longer rostrum and smaller audital bullæ.

Color. Head like *M. f. nosophora;* upper part of back light buff, all hairs tipped with white; lower back much darker, more like underparts, and the white much less conspicuous; chin and upper part of throat yellowish white; rest of underparts ochraceous-tawny, palest near tail; limbs, hands and feet similar to those of *M. f. nosophora*, but fingers and toes mixed black and buff; tail above reddish on basal half, remainder much paler, almost ochraceous; beneath black edged with tawny. Ex type in United States National Museum.

Measurements. Total length, 650; tail, 182; hind foot, 90. Skull: Occipito-nasal length, 87.5; Hensel, 75.5; zygomatic width, 50.4; intertemporal width, 15.9; length of nasals, 35.1; length of upper molar series, 21; length of mandible, 56.9; length of lower molar series, 20. Ex type in United States National Museum.

Marmota flaviventer warreni Howell.

Marmota flaviventer warreni Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 16.

Type locality. Crested Butte, Colorado.

Geogr. Distr. Western Colorado, limits of range unknown.

Genl. Char. Size large; color deep red; skull large, rostrum long, slender.

Color. Head chestnut-red; upper parts reddish, hairs white-tipped; arms above and beneath, and underparts tawny-ochraceous; underpart of thighs ochraceous-buff; hands chestnut, feet dark red; tail above tawny-red, beneath chestnut. Ex type in United States National Museum.

Measurements. Total length, 565; tail, 131; hind foot, 82. Skull: Occipito-nasal length, 90.5; Hensel, 79; zygomatic width, 59; intertemporal width, 16.5; length of nasals, 38.5; length of mandible, 58; length of lower molar series, 19.5. Ex type in United States National Museum.

Marmota flaviventer obscura Howell.

Marmota flaviventer obscura Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 16.

Type locality. Wheeler Peak, 5 miles south of Twining, New Mexico. Altitude, 11,300 feet.

Geogr. Distr. Upper slopes above timber line of the high peaks in northern New Mexico and southern Colorado, from the Pecos River Mountains north to the Sangre de Christo and San Juan Ranges, Colorado.

Genl. Char. Size large; tail long; colors dark; skull like that of *M. dacota* but the palatal foramina are narrower.

Color. Head and nape dark chestnut; upperparts chestnut-brown, hairs white-tipped; base of hairs black followed by buff; lips and chin white; underparts, sides of chest and belly like upperparts but darker; middle of chest and abdomen buffy; hands and feet blackish chestnut; tail above dark ochraceous-buff, beneath black in center margined by dark ochracoeus-buff. Ex type in United States National Museum.

Measurements. Total length, "average of three, 655; tail, 204; hind foot, 90.7. Skull: Occipito-nasal length, 83.9; Hensel, 72.8; zygomatic width, 59.4; intertemporal width, 16.3; length of nasals, 34.2; length of upper molar series, 20; length of mandible, 57.7; length of lower molar series, 18.7; Ex type in United States National Museum.

Marmota caligata cascadensis Howell.

Marmota caligata cascadensis Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 17.

Type locality. Mt. Rainier, Washington.

Geogr. Distr. Mt. Rainier, Washington, to the Mount Baker Range, British Columbia.

Genl. Char. Size large; similar in color to *M. caligata.*

Color. Nose, and extending back to eyes white, a black band across nose near tip; rest of head above mixed black and white; sides of head grizzled; entire upperparts and sides yellowish white; outer side of arms and entire hind legs yellowish white; inner side of arms and underparts a mixture of pale and dark buff; tail above mixed buff and reddish, beneath dark reddish and black; hands and feet black.

Measurements. Total length, 740; tail, 230; hind foot, 107. Skull: Occipito-nasal length, 101; Hensel, 85.2; zygomatic width, 66.2; intertemporal width, 15.3; length of nasals, 42.4; length of upper molar series, 23; length of mandible, 68.3; length of lower molar series, 21.1. Ex type in United States National Museum.

Marmota caligata nivaria Howell.

Marmota caligata nivaria Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 17.

Type locality. Upper St. Mary's Lake, Montana, Altitude, 6100 ft.

Geogr. Distr. Type locality to Bitterroot and Salmon River Mountains, Idaho.

Genl. Char. Similar to *M. oxytona* but whiter.

Color. Forehead white, rest of head mixed black and white; back from head to lumbar region and flanks white; hairs blackish white-tipped on small of the back; rump ochraceous, with hairs black-tipped; underparts grayish white, inclined to buff towards tail; tail above and below reddish, black at base, hairs white-tipped; hands and feet black. Ex type in United States National Museum.

Measurements. Total length "average of four," 751; tail, 224; hind foot, 105. Skull: Occipito-nasal length, 99.3; Hensel, 86.5; zygomatic width, 64.7; intertemporal width, 14.2; length of nasals, 39.7; length of upper molar series, 21.7; length of mandible, 66.5; length of lower molar series, 19.5. Ex type in United States National Museum.

Marmota caligata sheldoni Howell.

Marmota caligata sheldoni Howell, Proc. Biol. Soc. Wash., XXVII, 1914, p. 18.

Type locality. Montague Island, Alaska.

Genl. Char. Similar to *M. caligata*, but smaller; skull has shorter nasals and the premaxillæ narrower.

Color. Nose white; head on top black; sides of neck and shoulders iron-gray, as are also the flanks; hind neck and between shoulders grayish white; lower back and rump buff, hairs tipped with black; underparts whitish; tail all around reddish, tip black; hands and feet black. Ex type in United States National Museum.

Measurements. Total length, 670; tail, 185; hind foqt, 94. Skull: Occipito-nasal length, 88.5; Hensel, 77.9; zygomatic width, 61.5; intertemporal width, 17; length of nasals, 33.4; length of upper molar series, 22.6; length of mandible, 67.4; length of lower molar series, 20.2. Ex type in United States National Museum.

Family **Castoridæ. Beavers.**

Genus Castor (57).

Castor canadensis phæus Heller.

Castor canadensis phæus Heller, Univ. Calif. Pub. Zool., V, 1909, p. 250.

Type locality. Pleasant Bay, Admiralty Islands, Alaska.

Castor subauratus Taylor.

Castor subauratus Taylor, Univ. Calif. Pub. Zool., X, 1912, p. 167.

Type locality. Grayson, San Joaquin River, Stanislaus County, California.

Castor canadensis texensis Bailey.

Castor canadensis texensis Bailey, N. Am. Fauna, No. 25, 1905, p. 122.

Texas Beaver.

Type locality. Cummings Creek, Colorado County, Texas.

Geogr. Distr. Eastern Texas.

Genl. Char. Coloration pale; skull with short sagittal crest, lateral ridges lyrate or spreading; supra-occipital crest doubly curved; nasals long, spatulate, tapering to a point posteriorly.

Color. Pale brown above, beneath ash-gray. Ex type in United States National Museum.

Measurements. Hind foot, .74; naked portion of tail, 265 long, 113 wide (dry skin). Skull: basal length, 136; nasals, 57; breadth of nasals, 30; zygomatic breadth, 107; intertemporal breadth, 29;

mastoid breadth, 67; length of upper molar series, 32; length of mandible, 110.9; length of lower molar series, 39.4. Ex type in United States National Museum.

Castor canadensis leucodontus Gray.

Castor canadensis leucodontus Gray, Ann. and Mag. Nat. Hist., Ser. 4, IV, 1869, p. 293; Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 47.

Castor canadensis pacificus Rhoads, Proc. Am. Philos. Soc., N. S., XIX, 1898, pp. 422–423, pl. xxi, fig. 1, pl. xxii, fig. 1; Elliot, Syn. N. Am. Mamm., F. C. M. Pub., II, 1901, p. 117, Zool. Ser.; *Id.* Check-List Mamm. N. Am. Cont. and West Indies, F. C. M. Pub., VI, 1905, p. 129.

Type locality. Lake Kichelos, Cascade Mountains, Kittiloss County, Washington.

Geogr. Distr. Pacific Slope; California to Alaska.

This well-known species has usually been recognized as *C. c. pacificus*, the name bestowed upon it by Rhoads (*l. c.*), but Osgood has shown (*l. c.*) that the name *C. c. leucodontus* was given it by Gray (*l. c.*) as far back as 1869, and that is the one it must bear in the future.

Castor canadensis michiganensis Bailey.

Castor canadensis michiganensis Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 192.

Type locality. Tahquamenaw River, five miles above falls, Luce County, Michigan.

Genl. Char. Color dark; ears, hands and feet black. Skull short, wide, zygomatic arches wide; rostrum short; nasals constricted posteriorly; occipital crest present.

Color. Head and cheeks mahogany-brown; upperparts dark umber-brown; underparts blackish on breast, rest like upperparts but darker; flanks blackish; ears, hands and feet black. Ex type in United States National Museum.

Measurements. Total length, 1170; tail, 470; hind foot, 183. Skull: Occipito-nasal length, 26.2; intertemporal width, 25.5; Hensel, 115.2; zygomatic width, 96.4; length of nasals, 46; palatal length, 28.3; length of upper molar series, 29.4; mastoid breadth, 65; length of mandible, 92.7; length of lower molar series, 31.4. Ex type in United States National Museum.

Castor canadensis mexicanus Bailey.

Castor canadensis mexicanus Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 191.

Type locality. Ruidoso Creek, six miles below Ruidoso, New Mexico.

Genl. Char. Medium size, pale in hue and but little of the chestnut color. Skull, short, wide; rostrum and nasals wide.

Color. Above dull russet, crown brighter; cheeks and rump paler; underparts drab, sometimes buffy gray; hands and feet dark drab, with some chestnut color on feet; flanks dark drab. Ex type in United States National Museum.

Measurements. Total length, 1072; tail, 400; hind foot, 172. Skull: Occipito-nasal length, 145.6; zygomatic width, 101; Hensel, 122.6; length of nasals (medium), 48.7; palatal length, 32.9; length of upper molar series, 30; length of mandible, 110.5; length of lower molar series, 35.3. Ex type in United States National Museum.

Castor cæcator Bangs.

Castor cæcator Bangs, Bull. Mus. Comp. Zool., 54, 1913, p. 513.

Type locality. Bay St. George, Newfoundland.

Family **Muridæ. Rats, Mice, Voles.**

Subfamily **Murinæ.**

Genus Epinomys.

Rattus Fitzinger, Sitzungsb. Math.-Naturw. Clas. Köng. Akad. Wiss. Wien, LVI, 1867, Pt. II, p. 63. Type *Mus rattus* Linn. (nec *Rattus* Donovan, 1827).

Epimys (*Epinomys*) Trouess., Bull. Soc. d'Etudes Sci. Angers, 1881, X, p. 117.

In a paper published in the Proceedings of the Biological Society of Washington, Vol. XXIII, 1910, p. 57, on "The Generic name of the House Rats," Mr. G. S. Miller, Jr., shows that the term *Epimys* (*Epinomys*) Trouessart should be applied to the House Rats, of which by tautonymy, *Rattus domesticus* Fitzinger = *Mus rattus* Linn., is the type; and that *Mus musculus* should typify the genus *Mus* Linnæus.[1]

The introduced species occurring in North America would therefore stand as follows:

[1] [Since the above was written by Dr. Elliot further research has shown that *Rattus* Fischer, 1803, antedates *Epimys* for the same group by many years. (*Cf.* Hollister, Proc. Biol. Soc. Washington, XXIX, p. 206, and the references there cited.) — Editor.]

Epinomys rattus (Linnæus).

Epinomys norwegicus (Erxleben).

Epinomys alexandrinus (E. Geoffroy).

Subfamily **Cricetinæ.**

Genus Onychomys (59).

Onychomys torridus clarus Hollister.

Onychomys torridus clarus Hollister, Proc. Biol. Soc. Wash., XXVI, 1913, p. 215.

Type locality, Keeler, Inyo County, California.

Genl. Char. Like *O. t. longicaudus* but brighter colored and with very little dark streaking above. Anterior palatine foramina reaching to anterior line of first molars.

Color. Head pinkish cinnamon; cheeks, white; upperparts bright pinkish cinnamon, hairs with subapical buff band; underparts, limbs, hands and feet white, under-fur neutral gray; grayish brown on upper side of tail for two-thirds its length, remainder above and below white. Ex type in United States National Museum.

Measurements. Total length, 143; tail, 51; hind foot, 20.5; ear, 15.7. Skull: Occipito-nasal length, 25; Hensel, 18.5; zygomatic width, 13.2; intertemporal width, 5; length of nasals, 9 6; breadth of braincase, 11.6; length of upper molar series, 3.5; length of mandible, 11.4; length of lower molar series, 3.4. Ex type in United States National Museum.

Onychomys leucogaster capitulatus Hollister.

Onycomys leucogaster capitulatus Hollister, Proc. Biol. Soc. Wash., XXVI, 1913, p. 215.

Type locality. Prospect Valley, Hualpai Indian Reservation, Grand Cañon, Arizona. Altitude, 4500 feet.

Genl. Char. Like *O. l. ruidosæ* but darker. Skull smaller.

Color. Upperparts mixed cinnamon and black, the latter color most prominent on lower back and rump; cheeks paler cinnamon; flanks like back; underparts and limbs, hands and feet white; tail dark brown on basal half above, beneath white. Ex type in United States National Museum.

Measurements. Total length, 142; tail, 43; hind foot, 21; ear, 14.6; Skull: Occipito-nasal length, 29.1; Hensel, 20.6; zygomatic width, 14; intertemporal width, 4.7; breadth of braincase, 13; length of nasals, 9.2; length of upper molar series, 3.8; length of mandible,

12.4; length of lower molar series, 4.2. Ex type in United States National Museum.

Onychomys leucogaster breviauritus Hollister.

Onychomys leucogaster breviauritus Hollister, Proc. Biol. Soc. Wash., XXVI, 1913, p. 216.

Type locality. Fort Remo, Oklahoma.

Genl. Char. Like *O. l. longipes* but darker, with shorter tail, smaller hind feet and ears.

Color. Head and back blackish brown, the color coming from the tips of the hairs, the color of the remaining apical part being pinkish cinnamon; cheeks and flanks paler, hips and lower rump cinnamon; nose gray; spots at base of whiskers cinnamon; underparts, limbs, hands and feet white; tail above grayish brown, beneath white; ear-tufts cinnamon-buff. Ex type in United States National Museum.

Measurements. Total length, 164; tail, 42; hind foot, 2; ear, 13.2. Skull: Occipito-nasal length, 29.5; Hensel, 23.8; zygomatic width, 15.1; intertemporal width, 4.8; width of braincase, 12.5; length of nasals (median), 11.2; length of upper molar series, 4.6; length of mandible, 14.3; length of lower molar series, 4.9. Ex type in United States National Museum.

Onychomys leucogaster fuscogriseus Anthony.

Onychomys leucogaster fuscogriseus Anthony, Bull. Am. Mus. Nat. Hist., XXII, 1913, p. 11.

Type locality. Ironside, Malheur County, Oregon.

Genl. Char. Smaller than *O. leucogaster* and the adult pelage darker, more a pale cinnamon-rufous than the ochraceous-buff of the species compared; hind feet smaller.

Color. Top of head and upperparts dark gray with a slight intermixture of pale cinnamon-rufous; sides of head and face paler gray; orbital ring blackish; nose, lips, cheeks, flanks, entire underparts, arms, outer side of thighs pure white; tail above for three-fourths its length paler than the back, more of a pale cinnamon-rufous, remaining portion and underpart white; ears very dark gray, almost blackish, with basal tufts and tips white. Ex type in American Museum of Natural History.

A somewhat older specimen has the head and entire upperparts a pale cinnamon-rufous, both much darker in color than the upperparts of *O. leucogaster*, and there is very little of the gray exhibited which is the dominant color of the type of the present species.

Measurements. Total length, 140; hind foot, 34; tail, 20. Skull:

Occipito-nasal length, 25.7; Hensel, 14.2; zygomatic width, 12.7; intertemporal width, 4.5; length of nasals, 10; length of upper molar series, 4.3; length of mandible, 8.7; length of lower molar series, 3.8. Ex type in United States National Museum.

It is worthy of consideration whether, on account of the great difference in color and size, and the northern habitat, this mouse is not entitled to full specific rank, instead of being classed as a subspecies.

Genus Peromyscus (60).

Subgenus Baiomys.

Peromyscus taylori subater Bailey.

Peromyscus taylori subater Bailey, N. Am. Fauna, No. 25, 1905, p. 102.

Type locality. Bernard Creek, near Columbia, Brazoria County, Texas.

Genl. Char. Similar to *P. taylori*, but darker.

Color. Entire upperparts sooty-gray; underparts buffy. Ex type in United States National Museum.

Measurements. Total length, 91; tail, 37; hind foot, 15. Skull: Occipito-nasal length, 18.1; Hensel, 13.2; zygomatic width, 10; intertemporal width, 3.6; length of nasals, 6.3; length of upper molar series, 3; length of mandible, 7.7; length of lower molar series, 3.1. Ex type in United States National Museum.

Peromyscus taylori analogus Osgood.

Peromyscus taylori analogus Osgood, N. Am. Fauna, No. 28, 1909, p. 256.

Type locality. Zamora, Michoacan, Mexico.

Genl. Char. Similar to *P. t. subater*, darker than *P. paulus*.

Color. Upperparts blackish sepia; flanks sepia; underparts slaty gray, washed with wood-brown; hands, feet and toes dusky brown and grayish; tail, black above, paler below. Ex type in United States National Museum.

Measurements. Total length, 110; tail, 48; hind foot, 14; ear, 9.9. Skull: Occipito-nasal length, 17.5; Hensel, 13.4; zygomatic width, 9.7; intertemporal width, 3.4; length of nasals, 5.5; length of upper molar series, 3.3; length of mandible, 8.1; length of lower molar series, 2.6. Ex type in United States National Museum.

Subgenus **Megadontomys.**

Peromyscus pirrensis Goldman.

Peromyscus pirrensis Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 5.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama.

Genl. Char. Size large, similar to *P. flavidus*, but with a longer hind foot; color darker. Skull with a slender rostrum, first upper molar very narrow.

Color. Upperparts cinnamon-rufous, the black bases of hairs showing; rump rusty; flanks orange-buff; underparts creamy white; fingers of hands white; hind feet whitish, the metatarsus brown; tail brown above, slightly paler beneath. Ex type in United States National Museum.

Measurements. Total length, 348; tail, 185; hind foot, 35.5. Skull: Occipito-nasal length, 40.5; Hensel, 31.5; zygomatic width, 19; intertemporal width, 6; length of nasals, 15.3; length of upper molar series, 5.7; length of mandible, 17; length of lower molar series, 5.7. Ex type in United States National Museum.

Subgenus **Haplomylomys.**

Peromyscus eremicus insulicola Osgood.

Peromyscus eremicus insulicola Osgood, N. Am. Fauna, No. 28, 1909, p. 246.

Type locality. Espiritu Santo Island, off east coast of Lower California, Mexico.

Genl. Char. Similar to *P. e. eva*, but somewhat darker; pectoral stripe prominent.

Color. Upperparts mixed ochraceous-buff and dusky; underparts creamy white; buff line on center of chest; tail above dusky, lighter beneath. Ex type in United States National Museum.

Measurements. Total length, 196; tail, 115; hind foot, 20; ear, 16.5. Skull: Occipito-nasal length, 25.3; Hensel, 18.9; zygomatic width, 12.4; intertemporal width, 3.9; length of nasals, 8.5; length of upper molar series, 3.9; length of mandible, 11.2; length of lower molar series, 3.7. Ex type in United States National Museum.

Peromyscus eremicus avius Osgood.

Peromyscus eremicus avius Osgood, N. Am. Fauna, No. 28, 1909, p. 247.

Type locality. Ceralbo Island, off east coast of Lower California, Mexico.

Genl. Char. Similar to *P. e. eva*, but larger, ears smaller, teeth larger.

Color. Upperparts like *P. e. eva* mixed ochraceous and dusky; entire underparts cream-buff; tail above, blackish brown, beneath dull white. No pectoral spot. Ex type in United States National Museum.

Measurements. Total length, 212; tail, 108.2; hind foot, 28.3 (skin). Skull: Occipito-nasal length, 25.6; Hensel, 20; zygomatic width, 13.2; intertemporal width, 4; length of nasals, 10.2; length of mandible, 12.4; length of lower molar series, 4.5. Ex type in United States National Museum.

Peromyscus eremicus polypolius Osgood.

Peromyscus eremicus polypolius Osgood, N. Am. Fauna, No. 28, 1909, p. 248.

Type locality. Margarita Island, off the east coast of southern California, Mexico.

Genl. Char. Similar to *P. e. eva*, but grayer; rostrum more depressed; braincase shorter, more inflated.

Color. Upperparts a mixture of gray, dusky and pinkish buff, grayest on head and shoulders; a narrow streak on cheeks and lower sides pale ochraceous buff; underparts pale cream-buff; hands and feet white, ankles dusky; tail above dusky, beneath mixed whitish gray and dusky. Ex type in United States National Museum.

Measurements. Total length, 192; tail, 99.5; hind foot, 17.5 (skin). Skull: Occipito-nasal length, 24; Hensel, 17.5; zygomatic width, 12.1; intertemporal width, 4.2; length of nasals, 8.70; length of upper molar series, 3.7; length of mandible, 9.2; length of lower molar series 4.1. Ex type in United States National Museum.

Peromyscus eremicus carmeni Townsend.

Peromyscus eremicus carmeni Townsend, Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 126.

Type locality. Carmen Island, Gulf of California, Mexico.

Genl. Char. Similar to *P. e. eva*, but grayer, less rufescent.

Color. Forepart of head and nose grayish buff; top of head and entire upperparts pale ochraceous-buff; finely lined with black; flanks pale ochraceous-buff; entire underparts and inner side of limbs white, the plumbeous under-fur showing, especially on the hind legs; hands and feet white, tail above dark brown, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 206; tail, 116; hind foot, 21. Skull: Total length, 25.5; Hensel, 19.4; zygomatic width, 12.5; intertemporal width, 4; length of nasals, 10.2; length of upper tooth row, 3.7; length of mandible, 13.2; length of lower molar series, 3.3. Ex type in United States National Museum.

Peromyscus stephani Townsend.

Peromyscus stephani Townsend, Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 126.

Type locality. San Esteban Island, Gulf of California, Mexico.

Genl. Char. Similar in color to *P. eremicus*, tail slightly shorter. Skull has a greater intertemporal width, and a broader, heavier rostrum, and the nasals extend beyond premaxillaries.

Color. Head and upperparts yellowish gray mixed with black, darkest on dorsal line; flanks rich buff; entire underparts and inner side of legs white; base of fur black; outer side of legs like flanks; hands and feet white; tail above dark brown, becoming blackish on terminal third. Ex type in United States National Museum.

Measurements. Total length, 199; tail, 100; hind foot, 23. Skull: Occipital region lacking; skull broken; zygomatic width, 14; intertemporal width, 4.3; length of nasals, 10.3; length of upper molar series, 4; length of mandible, 12; length of lower molar series, 4.1. Ex type in United States National Museum.

Peromyscus guardia Townsend.

Peromyscus guardia Townsend, Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 126.

Type locality. Angel de la Guardia Island, Gulf of California, Mexico.

Genl. Char. Larger than *P. eremicus*; rostrum longer; incisive foramina longer reaching anterior plane of first molar.

Color. Head and upperparts yellowish gray mixed with black, lightest on head, darkest on lower back and rump; flanks pale orange-buff; entire underparts white, base of fur plumbeous; outer side of limbs like flanks; hands and feet white; tail above at base very pale yellowish brown, grading to darker brown on central portion, and becoming blackish on terminal third. Ex type in United States National Museum.

Measurements. Total length, 214; tail, 114; hind foot, 23. Skull: Occipito-nasal length, 26; Hensel, 20; zygomatic width, 12.4; intertemporal width, 4; length of nasals, 11.7; palatal length, 8.5; length of upper molar series, 3.9; length of mandible, 9.9; length of lower molar series, 3.5. Ex type in United States National Museum.

Subgenus **Peromyscus.**

Peromyscus maniculatus argentatus Copeland and Church.

Peromyscus canadensis argentatus Copel. and Church, Proc. Biol. Soc. Wash., XIX, 1906, p. 122.

Type locality. Grand Harbor, Grand Manan, New Brunswick.

Geogr. Distr. Island of Grand Manan, New Brunswick.

Genl. Char. Similar to *P. m. abietorum* but larger, color different; pronounced dark patch in front of eye.

Color. Upperparts slate-gray; dorsal line darker; underparts white, base of hairs plumbeous; dark patch in front of eye; hands and feet white; tail above black, beneath white. Type in United States National Museum.

Measurements. Total length, 179.5; tail, 87; hind foot, 21.5; ear, 17.5. Skull: Greatest length, 26.4; basilar length, 20; palatal length, 11; zygomatic width, 13.7; mastoid breadth, 11.1; intertemporal width, 4; length of nasals, 10.3; length of upper molar series, 3; length of lower molar series, 3.4; length of mandible, 16.4. Type in the United States National Museum.

Peromyscus maniculatus eremus Osgood.

Peromyscus maniculatus eremus Osgood, N. Am. Fauna, No. 28, 1909, p. 47.

Type locality. Pleasant Bay, Grindstone Island, Magdalen Islands, Quebec.

Genl. Char Similar to *P. m. abietorum*, but darker and with a shorter tail.

Color. Orbital ring and spot at base of whiskers dusky; upperparts russet and dusky mixed; underparts cream white; tail bicolor above, beneath white. Ex type in United States National Museum.

Measurements. Total length, 183; tail, 83; hind foot, 21; ear, 15.7. Skull: Occipito-nasal length, 26.1; Hensel, 19.6; zygomatic width, 13.1; intertemporal width, 3.8; length of nasals, 10.7; length of upper molar series, 4.1; length of mandible, 11.5, length of lower molar series, 4. Ex type in United States National Museum.

Peromyscus maniculatus borealis Mearns.

Peromyscus maniculatus borealis Mearns, Proc. Biol. Soc. Wash., XXIV, 1911, p. 102.

Hesperomys leucopus arcticus Mearns, Bull. Am. Mus. Nat. Hist., II, 1890, p. 285 (nec Coues).

Peromyscus texensis arcticus Elliot, Check-List Mamm. N. Am.

Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 146, No. 287 d., Zool. Ser.

Peromyscus maniculatus arcticus Osgood, N. Am. Fauna, No. 19, 1900, p. 33.

Peromyscus maniculatus nebrascensis (Coues).

Hesperomys sonoriensis var. *nebrascensis* Baird, Mamm. N. Amer., 1857, p. 462 (*nomen nudum*).

Hesperomys sonoriensis var. *nebrascensis* Coues, N. Am. Rodent., 1877, p. 79. (Specimens ex Deer Creek, Nebraska).

Peromyscus luteus Osgood, Proc. Biol. Soc. Wash., XVIII, 1905, p. 77 (ex Kennedy, Nebraska).

Peromyscus maniculatus nebrascensis Mearns, Proc. Biol. Soc. Wash., XXIV, 1911, p. 102; Osgood, N. Am. Fauna, No. 28, 1909, p. 77.

Type locality. Deer Creek, Nebraska.

Peromyscus maniculatus osgoodi Mearns.

Peromyscus maniculatus osgoodi Mearns, Proc. Biol. Soc. Wash., XXIV, 1911, p. 102.

Hesperomys leucopus nebrascensis Mearns, Bull. Am. Mus. Nat. Hist., II, 1890, p. 285.

Peromyscus texensis nebrascensis Elliot, Check-List Mamm. N. Am. Cont. and W. Indies, VI, 1905, p. 146, Zool. Ser.

Peromyscus maniculatus nebrascensis Osgood, N. Am. Fauna, No. 28, 1909, p. 75.

Type locality. Calf Creek, Custer County, Nebraska.

Dr. Mearns (*l. c.*) has, in his paper, called attention to the fact that of the names of the above three species, the first two were preoccupied, viz. *arcticus* Mearns 1910 nec *arcticus* Saussure of Coues, 1877, and as this name is a synonym of *Hesperomys maniculatus* Wagler, *arcticus* cannot be employed in the nomenclature of this genus, and may not be used for the race from Fort Simpson, Mackenzie, Canada, and for which he proposed the name *borealis*. The synonymy of these three forms would therefore stand as given above.

Peromyscus maniculatus hylæus Osgood.

Peromyscus hylæus Osgood, Proc. Biol. Soc. Wash., XXI, 1908, p. 141.

Type locality. Hollis, Kasaan Bay, Prince of Wales Island, Alaska.

Geogr. Distr. Islands and coast of southeastern Alaska, including Prince of Wales, Kupreanof, Mitkof, and Admiralty Islands, and on the mainland from Lynn Canal to Frederick Sound.

Genl. Char. Similar to *P. keeni*, rostrum longer and more slender.

Color. Top of head, nose, upperparts and flanks russet mixed with dusky on scapular region, and with black on dorsal region; underparts, sides of face and lips, hands and feet white; tail above blackish brown, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 215; tail, 107; hind foot, 19.4 (skin). Skull: Occipito-nasal length, 26.6; Hensel, 21.3; zygomatic width, 13.1; intertemporal width, 13.7; length of nasals, 10.6; length of upper molar series, 4. Ex type in United States National Museum.

Peromyscus maniculatus algidus Osgood.

Peromyscus maniculatus algidus Osgood, N. Am. Fauna, No. 28, 1909, p. 56.

Type locality. Head of Lake Bennett, British Columbia, Canada.

Geogr. Distr. Headwaters of the Yukon River, from Lake Bennett to the lower part of the Lewis River.

Geol. Char. Similar to *P. m. hylæus*, but paler, more gray.

Color. Entire upperparts cinnamon, mixed with dusky on sides and dorsal region; washed with grayish on head and face, and in some specimens, also on shoulders; orbital ring and spot at base of whiskers dusky; underparts creamy white; feet and hands white; tail blackish above, beneath white. Ex type in United States National Museum.

Measurements. Total length, 227; tail, 108; hind foot, 18.3 (skin). Skull: Occipito-nasal length, 27.1; Hensel, 20.8; zygomatic width, 13.6; intertemporal width, 4.3; length of nasals, 10.8; length of upper molar series, 4; length of mandible, 11.4; length of lower molar series, 4.4. Ex type in United States National Museum.

Peromyscus maniculatus margaritæ Osgood.

Peromyscus maniculatus margaritæ Osgood, N. Am. Fauna, No. 28, 1909, p. 95.

Type locality. Margarita Island off west coast of southern California, Mexico.

Genl. Char. Similar to *P. m. coolidgei*, but paler.

Color. Head, entire upperparts and flanks pinkish buff lined with dusky; nose and entire underparts, limbs, hands and feet white; base of hairs slaty except those on throat which are white to the roots; tail above dusky, beneath white; ears whitish at base, dusky at tips. Ex type in United States National Museum.

Measurements. Total length, 167; tail, 70.5; hind foot, 20.9 (skin). Skull: Occipito-nasal length, 25.2; Hensel, 19.1; zygomatic width, 13; intertemporal width, 3.8; length of nasals, 9.7; length of upper molar series, 3.5; length of mandible, 10.3; length of lower molar series, 3.6. Ex type in United States National Museum.

Peromyscus maniculatus clementis Mearns.

Peromyscus texanus clementis Mearns, Proc. U. S. Nat. Mus., XVIII, 1895, p. 446.

Type locality. San Clemente Island, Los Angeles County, California.

Geogr. Distr. Outer islands of the Santa Barbara group, off the coast of southern California, including San Clemente, Santa Barbara, San Nicolas, Santa Rosa, and San Miguel Islands.

Genl. Char. Similar to *P. m. gambeli* but larger and darker.

Color. Upperparts drab tinged with burnt umber on lower portion; top of head drab-gray, ochraceous-buff lateral line; underparts white; tail dark above, white beneath; hands and feet white; ears black. Ex type in United States National Museum.

Measurements. Total length, 177; tail, 77; hind foot, 21; ear, 17. Skull: Occipito-nasal length, 25.5; Hensel, 20; zygomatic breadth, 12.9; intertemporal width, 4; length of nasals, 9.6; length of upper molar series, 3.8; length of mandible, 12.7; length of lower molar series, 3.7. Ex type in United States National Museum.

Peromyscus maniculatus magdalenæ Osgood.

Peromyscus maniculatus magdalenæ Osgood, N. Am. Fauna, No. 28, 1909, p. 101.

Type locality. Magdalena Islands off west coast of southern Lower California, Mexico.

Geogr. Distr. Magdalena Islands and a narrow strip of the adjacent mainland of the Peninsula of Lower California.

Genl. Char. Similar to *P. m. geronimensis* but larger, tail longer and color darker.

Color. Upperparts ochraceous-buff mixed with dusky; face and head paler; underparts creamy white; tail above dusky, beneath white; feet and hands white. Ex type in United States National Museum.

Measurements. Total length, 201; tail, 87; hind foot, 5.9 (skin). Skull: Occipito-nasal length, 27; Hensel, 20.7; zygomatic width, 13.6; intertemporal width, 4.5; length of nasals, 10; length of upper molar series, 4; length of mandible, 12.3; length of lower molar series, 4.4. Ex type in United States National Museum.

Peromyscus maniculatus hollisteri Osgood.

Peromyscus maniculatus hollisteri Osgood, N. Am. Fauna, No. 28, 1909, p. 62.

Type locality. Friday Harbor, San Juan Island, San Juan County, Wash.

Color. Nose mixed buff and black; top of head and upperparts to rump mostly black with minute buff spots scattered through the black; rump paler, but little black showing; flanks like rump with cream-buff hairs intermingled; sides of face and nose at tip ochraceous-buff; entire underparts, hands and feet white; tail above dark brown, beneath cream-buff. Ex type in United States National Museum.

Measurements. Total length, 185; tail, 73; hind foot, 22. Skull: Total length, 26.8; Hensel, 20.7; zygomatic width, 14.4; intertemporal width, 4; length of nasals, 10.9; length of upper molar series, 4.1; length of mandible, 11; length of lower molar series, 3.9. Ex type in United States National Museum.

Peromyscus polionotus (Wagner).

Mus polionotus Wagner, Wiegm. Archiv. f. Naturg., II, 1843, p. 52.

Sitomys niveiventris subgriseus Chapm., Bull. Am. Mus. Nat. Hist., V, 1893, p. 340.

Peromyscus subgriseus arenarius Bangs, Proc. Bost. Soc. Nat. Hist., XXVIII, 1898, p. 203 (nec Mearns).

Peromyscus subgriseus baliolus Bangs, Science, N. S., VIII, 1907, p. 214; Elliot, Check-List, Mamm. N. Am. Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 139.

Peromyscus polionotus Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 49.

Type locality. Hursman Lake, Scriven County, Georgia.

The type of Wagner's species is in the Universitat Institute und Sammlungen in Zurich, Switzerland, where it was examined by Mr. Osgood who says of it (*l. c.*) "its identity as a member of the group of small mice containing the forms well-known under the names *subgriseus* and *niveiventris* is obvious. It is said to have come from Georgia, and its color, which is not greatly changed by exposure, agrees well with recently collected specimens from that region."

Wagner's name will therefore take precedence of those later bestowed upon the species, its synonymy being that here given.

Peromyscus polionotus albifrons Osgood.

Peromyscus polionotus albifrons Osgood, N. Am. Fauna, No. 28, 1909, p. 108.

Type locality. Whitfield, Walton County, Florida.

Geogr. Distr. Coast of western Florida and Alabama.

Genl. Char. Similar to *P. p. rhoadsi*, but white on pelage more widely distributed.

Color. Upperparts grayish fawn; nose at end white, that color extending narrowly to forehead between eyes; from lower border of

eye including all the underparts white; hands, feet and legs white; tail grayish brown above on basal third, remainder and underpart white; ears edged broadly with white. Type in United States National Museum.

Peromyscus leucopus aridulus Osgood.

Peromyscus leucopus aridulus Osgood, N. Am. Fauna, No. 28, 1909, p. 122.

Type locality. Fort Custer, Yellowstone County, Montana.

Geogr. Distr. Upper Sonoran Zone of eastern Wyoming and Montana, and the adjacent western parts of South Dakota and Nebraska, probably south of Oklahoma and west to eastern Colorado.

Genl. Char. Similar to *P. l. noveboracensis*, but larger and paler; skull larger, braincase wider; nasals broader; molar teeth and audital bullæ larger.

Color. Entire upperparts ochraceous-buff washed with dusky; dorsal line slightly darker; underparts creamy white; hands and feet white; tail above brown, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 177; tail, 73; hind foot, 22; ears, 14.5. Skull: Occipito-nasal length, 26.2; Hensel, 26; zygomatic width, 14.3; intertemporal width, 4.5; length of nasals, 10; length of upper molar series, 4; length of mandible, 11.3; length of lower molar series, 4.3. Ex type in United States National Museum.

Peromyscus leucopus ochraceus Osgood.

Peromyscus leucopus ochraceus Osgood, N. Am. Fauna, No. 28, 1909, p. 124.

Type locality. Winslow, Navajo County, Arizona.

Genl. Char. Similar to *P. l. tornillo*, but color different.

Color. Entire upperparts ochraceous-buff lined with dusky; darkest on middle of back, but not forming a dorsal line; underparts white, tinged with buff; tail above dusky brown, beneath buffy white; feet and hands buffy white; ears edged with creamy white, and wrists marked with ochraceous-buff. Ex type in United States National Museum.

Measurements. Total length, 180; tail, 82; hind foot, 22.5. Skull: Occipito-nasal length, 26.5; Hensel, 21.1; zygomatic width, 14.5; intertemporal width, 3.9; length of nasals, 10; length of upper molar series, 3.8; length of mandible, 13.7; length of lower molar series, 4.4. Ex type in United States National Museum.

Peromyscus leucopus mesomelas Osgood.

Peromyscus texensis mesomelas Osgood, Proc. Biol. Soc. Wash., XVII, 1904, p. 57.

Peromyscus leucopus mesomelas Osgood, N. Am. Fauna, No. 28, 1909, p. 132.

Type locality. Orizaba, State of Vera Cruz, Mexico.

Peromyscus pectoralis laceianus Bailey.

Peromyscus pectoralis laceianus Bailey, Proc. Biol. Soc. Wash., XIX, 1906, p. 57.

Type locality. Lacey Ranch, near Kerrville, Kerr County, Texas.

Geogr. Distr. West Central Texas, from the vicinity of Austin to the Big Bend of the Rio Grande and immediately adjacent parts of Mexico.

Genl. Char. Similar to *P. pectoralis;* tail shorter, no pectoral spot.

Color. Upperparts dark buffy gray; cheeks and shoulders bright buff; underparts white; tail above dark brown, beneath white; feet white. Ex type in United States National Museum.

Measurements. Total length, 185; tail, 95; hind foot, 23. Skull: Occipito-nasal length, 26.8; Hensel, 19.5; zygomatic width, 13.5; intertemporal width, 4.4; length of nasals, 10; length of upper molar series, 4; length of mandible, 12.2; length of lower molar series, 4.5. Ex type in United States National Museum.

Peromyscus truei lagunæ Osgood.

Peromyscus truei lagunæ Osgood, N. Am. Fauna, No. 28, 1909, p. 172.

Type locality. La Laguna, Laguna Mountains, Lower California, Mexico.

Geogr. Distr. Mountains of the region of the extremity of the peninsula of Lower California, Mexico.

Genl. Char. Like *P. truei*, tail longer, ears smaller.

Color. Upperparts ochraceous-buff lined with dusky; nose and region behind orbits grayish; orbital ring dusky; underparts creamy white; tail above brownish dusky, beneath white; hands and feet white; ankles dusky. Ex type in United States National Museum.

Measurements. Total length, 215; tail, 109.6; hind foot, 18.6 (skin). Skull: Occipito-nasal length, 27.1; Hensel, 20.9; zygomatic width, 12.4; intertemporal width, 4.1; length of nasals, 10.7; length of upper molar series, 4.6; length of mandible, 12.1; length of lower molar series, 5. Ex type in United States National Museum.

Peromyscus megalops melanurus Osgood.

Peromyscus megalops melanurus Osgood, N. Am. Fauna, No. 28, 1909, p. 215.

Type locality. Pluma, Oaxaca, Mexico.

Genl. Char. Similar to *P. melanops*, but smaller; skull and teeth generally smaller; pelage variable in color.

Color. Orbital ring and spot at base of whiskers dusky; upperparts Mars-brown; dorsal area darkest; underparts yellowish white; tail blackish above and below; hands and feet white, tarsal joint brownish. Ex type in United States National Museum.

Measurements. Total length, 219; tail, 116; hind foot, 21 (skin). Skull: Occipito-nasal length, 32.6; Hensel, 25; zygomatic width, 16; intertemporal width, 5.3; length of nasals, 12.3; length of upper molar series, 5.3. Ex type in United States National Museum.

Genus Nectomys Peters.

Nectomys Peters, Abhandl. K. Preuss. Akad. Wiss. Berlin, 1860–61, p. 151. Type *Mus squamipes* Lichtenstein.

Nectomys dimidiatus Thomas.

Nectomys dimidiatus Thomas, Ann. and Mag. Nat. Hist., Ser. 7, XVII, 1906, p. 422.

Type locality. Escondido River, 7 miles below Rama, Nicaragua.

Nectomys alfari efficax Goldman.

Nectomys alfari efficax Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 7.

Type locality. Cana, eastern Panama. Altitude, 1,800 feet.

Genl. Char. Similar to *N. alfari*, but more tawny-ochraceous. Skull with narrower braincase and rostrum heavy.

Color. Upperparts pale tawny-ochraceous and black; top of head and face darker; flanks and outer side of limbs have the ochraceous color predominating; underparts washed with pale buff over white; tail brownish all around; hands and feet flesh color sparsely covered with gray hairs. Ex type in United States National Museum.

Measurements. Total length, 305; tail, 179; hind foot, 36.5. Skull: Occipito-nasal length, 35.6; Hensel, 28; zygomatic width, 19.7; intertemporal width, 7.2; length of nasals, 14.2; length of upper molar series, 5.4; length of mandible, 18.9; length of lower molar series, 5.5. Ex type in United States National Museum.

Genus Rheomys.

Rheomys Thomas, Ann. and Mag. Nat. Hist., Ser. 7, XVII, 1906, p. 421. Type.

Rheomys underwoodi Thomas.

Rheomys underwoodi Thomas, Ann. and Mag. Nat. Hist., Ser. 7, XVII, 1906, p. 422.

Rheomys raptor Goldman.

Rheomys raptor Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 7.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama. Altitude, 4,500 feet.

Genl. Char. Size small; color dark. Skull with frontal region not depressed, bullæ low, short.

Color. Upperparts, nose to tail, mixed cinnamon and black; flanks grayer; underparts pale mouse-gray; under fur plumbeous; some white hairs on rump which is slightly darker than back; tail black above and beneath; hands and feet brown grading into white fingers and toes. Ex type in United States National Museum.

Measurements. Total length, 201; tail, 94; hind foot, 23.5. Skull: Occipito-nasal length, 25.2; Hensel, 19.8; zygomatic width, 13.5; intertemporal width, 4.9; length of nasals, 9.6; length of upper molar series, 4.3; length of mandible, 12.4; length of lower molar series, 3. Ex type in United States National Museum.

Genus Ototylomys (64).

Ototylomys fumeus Allen.

Ototylomys fumeus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 658.

Type locality. Matagalpa, Nicaragua.

Color. Head and upperparts dusky grayish brown, darkest on dorsal region; throat and underparts, and inner side of limbs pure white; tail naked, black, annulations broad; ears, dusky brown, mostly naked. Ex type in American Museum of Natural History.

Measurements. Total length, 330; tail, 140; hind foot, 30 (collector). Skull: Total length, 42; Hensel, 30.5; zygomatic width, 21; intertemporal width, 7.7; length of nasals, 14; length of upper molar series, 6.4; length of mandible, 18.2; length of lower molar series, 6.7. Ex type in American Museum of Natural History.

Ototylomys guatemalæ Thomas.

Ototylomys guatemalæ Thomas, Proc. Zool. Soc. Lond., 1909, p. 670.

Type locality. Tucuru, Polochic River, about 50 miles east of Coban, Guatemala.

Genus Sigmodon (65). Cotton Rats.

Sigmodon hispidus griseus Allen.

Sigmodon hispidus griseus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 657.

Type locality. Chontales, Nicaragua.

Color. Head and upperparts maize-yellow and black; top of head and dorsal line much the darkest, being nearly all black; flanks maize-yellow slightly lined with black, being much lighter than back; outer side of limbs like flanks; entire underparts and inner side of limbs grayish white, the hairs being plumbeous at base and with white tips; toes grayish; tail black above, dark brown beneath, naked; ears blackish. Ex type in American Museum of Natural History, New York.

Measurements. Total length, 230; tail, broken, 50; hind foot, 30; full length of tail varies from 110 to 130. Skull: Total length, 35.9; Hensel, 30.2; zygomatic width, 21.6; intertemporal width, 5.2; length of nasals, 15; length of mandible, 12.5; length of lower molar series, 6.8. Ex type in American Museum of Natural History, New York.

It will be observed that the above differs considerably from Dr. Allen's description, as he calls it a gray animal, while I fail to find any gray about it save on the underparts, where white and plumbeous are mingled.

Sigmodon vulcani Allen.

Sigmodon vulcani Allen, Bull. Am. Mus. Nat. Hist., XXII, 1906, p. 247.

Type locality. Volcan de Fuego, Jalisco, Mexico. Altitude, 10,000 feet.

Color. Head and upperparts cream-buff lined with black; flanks cream-buff, no black; underparts gray; outer side of limbs like back; feet gray; tail above blackish, beneath grayish brown. Ex type in American Museum of Natural History.

Measurements. Total length, 235; tail, 95; hind foot, 32. Skull: Total length, 34; zygomatic width, 19. Ex type in American Museum of Natural History.

Sigmodon minimus goldmani Bailey.

Sigmodon minimus goldmani Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 132.

Type locality. 7 miles north of Palomas, New Mexico. Altitude, 4200 feet.

Genl. Char. Similar to *S. minimus*, but darker.

Color. Upperparts and head grizzled white, black and buff; underparts dark fulvous; tail black; hands and feet blackish; ears black. Ex type in United States National Museum.

Measurements. Total length, 256; tail, 107; hind foot, 31. Skull: Occipito-nasal length, 32.7; Hensel, 27.4; zygomatic width,

19.2; intertemporal width, 5.1; length of nasals, 11.3; palatal length, 7.1; length of upper molar series, 6.2; length of mandible, 19.3; length of lower molar series, 6.5. Ex type in United States National Museum.

Genus Oryzomys (66).

Oryzomys alfaroi incertus Allen.

Oryzomys alfaroi incertus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 655.

Type locality. Rio Grande, Nicaragua.

Genl. Char. Similar to *O. alfaroi*, but smaller and darker.

Color. Head and entire upperparts golden rufous, darkest on dorsal region; outer side of limbs paler; underparts and inner side of limbs whitish; hands white, feet pale brown; tail naked, above blackish, beneath paler; ears blackish brown. Ex type in American Museum of Natural History.

Measurements. Total length, 190; tail, 101; hind foot, 19.7. Skull: Broken; intertemporal width, 4.7; length of nasals, 10.2; length of upper molar series, 5.2; length of mandible, 13.4; length of lower molar series, 4.6. Ex type in American Museum of Natural History.

Oryzomys bombycinus Goldman.

Oryzomys bombycinus Goldman, Smith. Misc. Coll., LVI, 1912, No. 36, p. 6.

Type locality. Cerro Azul, near headwaters, of Chagres River, Panama. Altitude, 2500 feet.

Genl. Char. Similar to *O. carrikeri*, but fur longer, and the skull more slender.

Color. Face blackish; upperparts vandyke-brown; dorsal line black, flanks paler; underparts whitish; plumbeous color of underfur showing; hands and feet dark flesh color; tail above brownish, beneath grayish. Ex type in United States National Museum.

Measurements. Total length, 252; tail, 127; hind foot, 32. Skull: Occipito-nasal length, 31.1; Hensel, 23.7; zygomatic width, 15.4; intertemporal width, 5.5; length of nasals, 12.2; palatal length, 6.2; length of upper molar series, 3.6; length of mandible, 14.1; length of lower molar series, 5. Ex type in United States National Museum.

Oryzomys pirrensis Goldman.

Oryzomys pirrensis Goldman, Smith. Misc. Coll., LX, 1913, No. 22, p. 5.

Type locality. Near head of Rio Limon, Mount Pirri, Panama. Altitude, 4,500 feet.

Genl. Char. Similar to *O. devius*, but darker.

Color. Top of head and upperparts Mars-brown, darkest on median line from top of head to tail; cheeks paler, rufescent, as are also shoulders and flanks; throat grayish; rest of underparts dark ochraceous-buff; base of fur plumbeous; outer side of limbs dark brownish, a buffy line from wrists to lower edge of forearm; tail above dark brown, beneath paler; hands blackish, fingers lighter; hind feet dark brown, toes with tufts of silvery hairs at end of longest four; ears blackish. Ex type in United States National Museum.

Measurements. Total length, 340; tail, 185; hind foot, 38. Skull: Occipito-nasal length, 37.3; Hensel, 28.7; zygomatic width, 20; intertemporal width, 6; length of nasals, 14; length of upper molar series, 6; length of mandible, 19.6; length of lower molar series, 6.1. Ex type in United States National Museum.

Oryzomys carrikeri Allen.

Oryzomys carrikeri Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 656.

Type locality. Rio Sicsola, Talamanca, Costa Rica.

Color. Head and upperparts Mars-brown lined with light ochraceous-buff, darkest on dorsal region; flanks ochraceous-buff; outer side of limbs Mars-brown; underparts and inner side of limbs grayish white; tail dark brown, beneath slightly paler; hands white; feet pale brown. Ex type in American Museum of Natural History.

Measurements. Total length, 265; tail, 133; hind foot, 30.5. Skull: Total length, 31.5; intertemporal width, 5; zygomatic width, 14.7; length of nasals, 12; length of molar series, 5; length of mandible, 17.1; length of lower molar series, 5.2. Ex type in American Museum of Natural History.

Oryzomys frontalis Goldman.

Oryzomys frontalis Goldman, Smith. Misc. Coll., LVI, No. 36, 1912, p. 6.

Type locality. Corozal, Canal Zone, Panama.

Genl. Char. Similar to *O. flavicans*, but larger and darker.

Color. Head cinnamon-rufous and dusky; upperparts cinnamon-rufous; flanks paler; underparts, lips and inner side of limbs white; hands brownish; feet white; tail dusky above and below; ears brownish. Ex type in United States National Museum.

Measurements. Total length, 309; tail, 161; hind foot, 30. Skull: Occipito-nasal length, 35.1; Hensel, 27; zygomatic width, 18; inter-

temporal width, 6.7; length of nasals, 12; palatal length, 6.7; length of upper molar series, 4.9; length of mandible, 17.1; length of lower molar series, 5. Ex type in United States National Museum.

Oryzomys gatunensis Goldman.

Oryzomys gatunensis Goldman, Smith. Misc. Coll. LVI, No. 36, 1912, p. 7.

Type locality. Gatun, Canal Zone, Panama.

Genl. Char. Similar to *O. richmondi* but paler; skull wider between orbits; interparietal smaller.

Color. Face brownish; head and upperparts grizzled black and raw-umber; flanks buffy; underparts pinkish buff, plumbeous of under fur showing through; hands and feet flesh color; tail above grayish brown, beneath paler. Ex type in United States National Museum.

Measurements. Total length, 224; tail, 115; hind foot, 31.5. Skull: Occipito-nasal length, 26.6; Hensel, 20.8; zygomatic width, 14.5; intertemporal width, 5.3; length of nasals, 10.2; palatal length, 5.2; length of upper molar series, 4.7; length of mandible, 12.9; length of lower molar series, 5.1. Ex type in United States National Museum.

Oryzomys nicaraguæ Allen.

Oryzomys nicaraguæ Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 100.

Type locality. Vijagua, Nicaragua.

Color. Head and upperparts light ochraceous-buff and black; flanks light ochraceous-buff; chin and throat white; pectoral region buffy white, abdominal region grayish white; tail above blackish, beneath paler; hands white, feet pale brown. Ex type in American Museum of Natural History.

Measurements. Total length, 180; tail, 110; hind foot, 20. Skull: Total length, 21.3; Hensel, 15.4; zygomatic width, 11; width of braincase, 10; length of nasals, 8.6; length of upper molar series, 3; length of mandible, 9.7; length of lower molar series, 3. Ex type in American Museum of Natural History.

Oryzomys ochraceus Allen.

Oryzomys ochraceus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 655.

Type locality. Rio Grande, Nicaragua.

Color. Head and upperparts ochraceous mixed with black on dorsal region; flanks ochraceous-buff; underparts buff; hands and

feet reddish brown; tail above and beneath dark brown, uniform, naked. Ex type in American Museum of Natural History.

Measurements. Total length, 300; tail, 180; hind foot, 40. Skull: Total length, 36; Hensel, 28.3; zygomatic width, 20; intertemporal width, 7; length of nasals, 14; length of upper molar series, 5.3; mastoid width, 13; length of mandible, 15.4; length of lower molar series, 5.3. Ex type in American Museum of Natural History.

Oryzomys richardsoni Allen.

Oryzomys richardsoni Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 99.

Type locality. Pena Blanca, Nicaragua.

Color. Upperparts warm buff, hairs tipped with black, base of hairs plumbeous; flanks light buff, hairs black-tipped; underparts white with a pinkish tinge; top of head like back; sides of head and neck like flanks; outer side of limbs slightly darker than flanks; hands buffy; feet covered sparsely with fine white hairs; tail above pale brown, lighter beneath; ears dark brown. Ex type in American Museum of Natural History.

Measurements. Total length, 270; tail, 150; hind foot, 32.5. Skull: Total length, 31; Hensel, 24.9; zygomatic width, 17; intertemporal width, 5; length of nasals, 12; length of upper molar series, 4.7; length of mandible, 15.9; length of lower molar series, 5.2. Ex type in American Museum of Natural History.

Genus Melanomys.

Melanomys Thomas, Ann. and Mag. Nat. Hist., 7th ser., X, 1902, p. 248. Type *Oryzomys phæopus* Thomas.

Melanomys was originally proposed by Thomas as a subgenus of *Oryzomys* to embrace an aberrant group included by Bangs in the genus *Zygodontomys*, but differing from the species in that genus by wide skulls, especially between the orbits, and well-marked supraorbital ridges, a dark colored pelage, almost naked feet and hands, and white nails. Dr. J. A. Allen, has reviewed the group (Bull. Am. Mus. Nat. Hist., XXXII, 1913, p. 533) and raised Thomas' subgenus to full generic rank, recognizing nine species and five subspecies, ranging from the highlands of Nicaragua to northern Bolivia, and eastward to Bogotá and the region of the Sierra Nevada de Santa Marta. In Central America two species have been recognized as *Zygodontomys chrysomelas* and *Z. idoneus* which must hereafter be included in the genus *Melanomys*. The first is among the species

of *Zygodontomys* in the Check-List, 1905, p. 190, the second is described below.

Melanomys idoneus (Goldman).

Oryzomys idoneus Goldm., Smith. Misc. Coll. LVI, No. 36, p. 5.

Melanomys idoneus Allen, Bull. Am. Mus. Nat. Hist., XXXII, 1913, p. 548.

Type locality. Cerro Azul, near headwaters of Chagres River, Panama. Altitude, 2500 feet.

Color. Above mixed cinnamon-rufous and black; flanks paler; underparts tawny ochraceous; outer side of limbs dark brownish cinnamon; hands, feet and tail black, hairs thinly dispersed over the black skin. Ex type in United States National Museum.

Measurements. Total length, 218; tail, 88; hind foot, 30. Skull: Total length, 31.5; Occipito-nasal length, 30.9; zygomatic width, 17.5; intertemporal width, 6.5; length of nasals, 12.5; palatal length, 7.5; length of upper molar series, 4.8; length of mandible, 16.6; length of lower molar series, 3.5. Ex type in United States National Museum.

Genus Neacomys.

Neacomys Thomas, Ann. and Mag. Nat. Hist., 7th ser., V, 1900, p. 153. Type *Oryzomys spinosus* Thomas.

Neacomys pictus Goldman.

Neacomys pictus Goldm., Smith. Misc. Coll., LX, 1912, No. 2, p. 6.

Type locality. Cana, eastern Panama. Altitude, 1800 feet.

Genl. Char. Similar to *N. pusillus*, but larger; feet white.

Color. Feet and upperparts mixed orange-rufous and black, the black being less strong on cheeks, shoulders and sides where the ochraceous-buff predominates, and forms a line between the upper and underparts; orbital rings and nose dusky; lips, throat, inner sides of forearms and underparts white, the white going to the roots of hairs on the throat; outer side of forearms ochraceous buffy, becoming brownish near wrists; inner side of legs pale buffy; tail above dark brown, paler beneath, but the tip is dark all around. Ex type in United States National Museum.

Measurements. Total length, 159; tail, 83; hind foot, 21.5. Skull: Greatest length, 21.4; Hensel, 15; zygomatic width, 11.2; intertemporal width, 4.4; length of nasals, 8.6; palatal length, 3.8; length of upper molar series, 2.7; length of mandible, 8.6; length of lower molar series, 2.8. Ex type in United States National Museum.

Genus Zygodontomys (68).

Zygodontomys cherriei ventriosus Goldman.

Zygodontomys cherriei ventriosus Goldm., Smith. Misc. Coll., LVI, No. 36, 1912, p. 8.

Type locality. Tabernilla, Canal Zone, Panama.

Genl. Char. Similar to *Z. cherriei*, but larger, color paler.

Color. Head and upperparts grayish brown, dorsal line darker; flanks paler, more gray; outer side of limbs like flanks; underparts and inner side of limbs creamy white; tail above grayish, beneath whitish; hands and feet white, ears brownish, long rusty hairs on anterior base. Ex type in United States National Museum.

Measurements. Total length, 240; tail, 104; hind foot, 28. Skull: Occipito-nasal length, 31.7; Hensel, 25.3; zygomatic width, 15.9; intertemporal width, 4.9; length of nasals, 10.4; palatal length, 6.5; length of upper molar series, 4.2; length of lower molar series, 5. Ex type in United States National Museum.

Genus Rhithrodontomys (70). Harvest Mice.

Rhithrodontomys australis modestus Thomas.

Reithrodontomys (!) *modestus* Thomas, Ann. and Mag. Nat. Hist., 7th ser., XX, 1907, p. 163.

Reithrodontomys (!) *australis modestus* Howell, N. Am. Fauna, No. 36, 1914, p. 63.

Type locality. Jinotega, Nicaragua, Central America.

Rhithrodontomys humulis (Bachman).

Mus humulis Bachman, in Aud. and Bach., Proc. Acad. Nat. Sci. Phila., 1841, p. 97.

Mus lecontii. Aud. and Bach., Journ. Acad. Nat. Sci. Phila., 1842, p. 307.

Mus humilis Aud. and Bach., Quad. N. Am., II, 1851, p. 103, pl. lxv, p. 116.

Reithrodontomys humulis Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 49; Howell, N. Am. Fauna, No. 36, 1914, p. 19.

Rhithrodontomys lecontei Elliot, Check-List Mamm. N. Am. & W. Indies, F. C. M. Pub., VI, 1905, p. 191, Zool. Ser.

Dr. Allen (Bull. Am. Mus. Nat. Hist., VII, 1895, p. 116) rejected Bachman's name of *humulis* for this species because it was not stated in the description that the incisors were grooved, and therefore it

could not have been a *Rhithrodontomys*. Mr. Osgood (*l. c.*) decides against this view of the case because the original description, the vernacular name "Little Harvest Mouse" and the colored plate (No. LXV) all indicate a species of this genus, and not a *Mus* or *Peromyscus*. It might also be advanced that as Bachman regarded it as belonging to the Linnæan genus *Mus*, he probably did not look for or perceive any generic character which might separate his specimen from the genus in which he placed it, and the grooving was either not noticed at all, or else regarded as of no especial consequence. The evidence would seem to prove, however, that it was a *Rhithrodontomys* he called *Mus humulis*, and this was identical with the species found on the eastern coast of South Carolina and Georgia, and that *R. leconlii* (Aud. & Bach.) must become a synonym.

Rhithrodontomys raviventris Dixon.

Reithrodontomys (!) *raviventris* Dixon, Proc. Biol. Soc. Wash., XXI, 1908, p. 197.

Type locality. Redwood City, San Mateo County, California.

Genl. Char. Darker than *R. longicauda*, underparts bright fulvous.

Color. Sides of nose brownish black; lips black; chin has white spot in some examples; upperparts black; hands and feet purple; fingers and toes white; underparts bright fulvous; tail black.

Measurements. Total length, 146; tail, 70; hind foot, 17

Rhithrodontomys halicœtes Dixon.

Reithrodontomys (!) *halicœtes* Dixon, Univ. Cal. Pub. Zool., V, 1909, p. 271.

Type locality. Three miles south of Petaluma, Sonora County, California.

Rhithrodontomys griseus Bailey.

Reithrodontomys griseus Bailey, N. Am. Fauna, No. 25, 1905, p. 106. Little Gray Harvest Mouse.

Type locality. San Antonio, Texas.

Geogr. Dist. From San Antonio north into southeastern Nebraska.

Genl. Char. Size small; tail short, bicolor.

Color. Above dark buffy gray, dorsal line darker; black spots on upper outer surface of ear, and another on the lower inner surface; hands, feet, and underparts white; tail above blackish, beneath white. Ex type in United States National Museum.

Measurements. Total length, 120; tail vertebræ, 56, hind foot, 14. Skull: Occipito-nasal length, 19.2; basal length, 16; nasals, 7; zygomatic breadth, 10.4; mastoid breadth, 9; width of braincase, 9.8;

interorbital constriction, 3. Ex type in United States National Museum.

468*a*. **Rhithrodontomys amœnus** Elliot.

Rhithrodontomys amœnus Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 234.

Type locality. Reforma, State of Oaxaca, Mexico.

Geogr. Distr. Known only from State of Oaxaca, Mexico.

Genl. Char. Allied to *R. helvolus* but color different.

Color. Fore part of back, cheeks and shoulders pale ochraceous-buff; top of head, lower part of back, rump and flanks dull ochraceous-rufous, tinged with hazel; underparts, hands and feet white; tail brownish above, white beneath. Ex type in Field Museum of Natural History, Chicago.

Measurements. Total length, 148; tail, 81; hind foot, 8.5. Skull: Total length, 20; Hensel, 14; zygomatic width, 10; interorbital constriction, 3; palatal length, 8; length of nasals, 6; length of upper molar series, 4; length of mandible, 12; length of lower molar series, 4. Ex type in Field Museum of Natural History, Chicago.

Rhithrodontomys megalotis nigrescens Howell.

Reithrodontomys (!) *megalotis nigrescens* Howell, N. Am. Fauna, 1914, No. 36, p. 32.

Type locality. Payette, Idaho.

Geogr. Distr. Eastern Oregon and western Idaho; north to Prescott, Washington, south to Bieber, California.

Genl. Char. Similar to *R. megalotis*, but black above less buffy.

Color. Summer Pelage. More brownish generally and less black than in winter.

Winter Pelage. Upperparts mixed black and pale ochraceous, darkest on dorsal region; buff lateral line indistinct; tail above blackish brown, beneath white; underparts, hands and feet white; ears hair-brown; hairs ochraceous. Type in United States National Museum.

Rhithrodontomys amoles Howell.

Reithrodontomys (!) *amoles* Howell, N. Am. Fauna, 1914, No. 36, p. 40.

Type locality. Pinal de Amoles, Queretaro, Mexico.

Genl. Char. Like *R. m. saturatus* but smaller; zygomata parallel; bullæ smaller, flatter.

Color. Upperparts black and ochraceous-buff mixed; underparts whitish, pectoral region tinged with ochraceous-buff; tail above fus-

cous, beneath grayish white; hands white, with a dusky stripe on upper side; feet whitish; ears dark brown. Type in United States National Museum.

Measurements. Total length, 154; tail, 83; hind foot, 16.5. Type in United States National Museum.

Rhithrodontomys fulvescens chiapensis Howell.

Reithrodontomys (!) *fulvescens chiapensis* Howell, N. Am. Fauna, 1914, No. 36, p. 53.

Type locality. Canjob, Chiapas, Mexico.

Geogr. Distr. Highlands of the State of Chiapas, Mexico.

Genl. Char. Similar to *R. helvolus* but darker and smaller.

Color. Upperparts ochraceous-salmon, lined with black; lateral line salmon; underparts grayish white; tail above fuscous, beneath whitish; hands and feet grayish; ears fuscous. Type in United States National Museum.

Rhithrodontomys fulvescens nelsoni Howell.

Reithrodontomys (!) *fulvescens nelsoni* Howell, N. Am. Fauna, 1914, No. 36, p. 53.

Type locality. Colima, State of Colima, Mexico.

Geogr. Distr. Coast region of the State of Colima and Province of Tepic, Mexico.

Genl. Char. Similar to *R. tenuis* but smaller; more ochraceous.

Color. Upperparts deep ochraceous-buff; tail above fuscous, beneath grayish white; hands pale buff, feet whitish; ears dusky; hair brown. Type in United States National Museum.

Rhithrodontomys fulvescens mustelinus Howell.

Reithrodontomys (!) *fulvescens mustelinus* Howell, N. Am. Fauna, 1914, No. 36, p. 54.

Type locality. Llano Grande, Oaxaca, Mexico.

Geogr. Distr. Coast regions of the States of Oaxaca and Guerrero.

Genl. Char. Similar to *R. helvolus* but darker; underparts buffy.

Color. Upperparts ochraceous-salmon mixed with black; underparts pinkish buff; tail above fuscous, beneath whitish; hands buffy white; hind feet grayish white; ears hair-brown. Type in United States National Museum.

Measurements. Total length, 184; tail, 105; hind foot, 20.

Rhithrodontomys rufescens luteolus Howell.

Reithrodontomys (!) *rufescens luteolus* Howell, N. Am. Fauna, 1914, No. 36, p. 57.

Type locality. Juquila Oaxaca, Mexico. Altitude, 5,000 feet.

Geogr. Distr. Mountains in States of Oaxaca and Guerrero, Mexico.

Genl. Char. Similar to *R. rufescens* but not so blackish.

Color. Upperparts rich ochraceous-buff, suffused on back with blackish brown; underparts pale pinkish cinnamon; tail above fuscous, beneath whitish; hands and feet whitish, buff tinged; ears fuscous. Type in United States National Museum.

Rhithrodontomys alleni Howell.

Reithrodontomys (!) *alleni* Howell, N. Am. Fauna, No. 36, 1914, p. 59.

Type locality. Ozolotepec, Oaxaca, Mexico. Altitude 10,000 feet.

Genl. Char. Similar to *R. colimæ*, but back darker, whiter beneath, and tail longer. Molars without accessory enamel loops.

Color. Upperparts light pinkish cinnamon mixed with black, darkest on dorsal line; underparts white; tail above fuscous, beneath paler; hands buffy white, feet grayish white tinged with hair-brown; ears pale fuscous. Type in United States National Museum.

Measurements. Total length, 182; tail, 100; hind foot, 19.

Genus Scotinomys.

Scotinomys Thomas, Ann. and Mag. Nat. Hist., XI, 8th ser., 1913, p. 408. Type *Hesperomys teguina* Alston.

This genus was instituted by Thomas to replace *Acodon* (71) for the Central American species formerly referred to that genus.

Scotinomys teguina (Alston).

Hesperomys teguina Alston, Proc. Zool. Soc. Lond., 1876, p. 755; Elliot, Mamm. Middle Amer. and W. Indies, F. C. M. Pub. IV, Pt. I, 1904, p. 273, figs. 44, xlii, Zool. Ser.; *Id.* Check-List Mamm. N. Amer. Cont. and W. Indies, F. C. M., Pub. VI, 1905, p. 204, Zool. Ser.

Type locality. Coban, Guatemala.

Scotinomys teguina apricus (Bangs).

Akodon (!) *teguina apricus* Bangs, Bull. Mus. Comp. Zool., XXXIX, 1902, p. 40; Elliot, Mamm. Middle Amer. and W. Indies, F. C. M. Pub., IV, Pt. I, 1904, p. 274, Zool. Ser. *Id.* Check-List Mamm. N. Amer. Cont. and W. Indies, F. C. M. Pub. VI, 1905, p. 204, Zool. Ser.

Type locality. Boquete, Chiriqui, Panama.

Scotinomys irazu (Allen).

Akodon (!) *irazu* Allen, Bull. Am. Mus. Nat. Hist., XX, 1904, p. 46; Elliot, Mamm. Middle Amer. and W. Indies, F. C. M. Pub. IV, Pt. 1, 1904, p. 274; *Id.* Mamm. N. Amer. Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 204, Zool. Ser.

Type locality. Volcan de Irazu, Costa Rica.

Scotinomys xerampelinus (Bangs).

Akodon (!) *xerampelinus* Bangs, Bull. Mus. Comp. Zool., XXXIX, 1902, p. 41; Elliot, Mamm. Middle Amer. and W. Indies, F. C. M. Pub., IV, Pt. 1, 1904, p. 275, Zool. Ser.; *Id.* Mamm. N. Amer. Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 205, Zool. Ser.

Type locality. Volcan de Chiriqui, Chiriqui, Panama.

Genus Rhipidomys.

Rhipidomys Tschudi, Wiegm. Archiv. Naturg., I, 1844, p. 252. Type *Hesperomys leucodactylus* Tschudi.

Rhipidomys scandens Goldman.

Rhipodomys scandens Goldm., Smith. Misc. Coll. LX, 1913, No. 22, p. 8.

Type locality. Rio Limon, Mount Pirri, eastern Panama. Altitude, 5000 feet.

Genl. Char. Similar to *R. venezuelæ*, but darker.

Color. Entire upperparts pale cinnamon-rufous lined with black; underparts, hairs white to the roots; tail brownish above and beneath with slight tuft at tip; hands white; feet white, on outer side; chocolate-brown on inner. Ex type in United States National Museum.

Measurements. Total length, 330; tail, 198; hind foot, 32. Skull: Occipito-nasal length, 31.1; Hensel, 26.8; zygomatic width, 19.2; intertemporal width, 5.3; length of nasals, 18.8; length of upper molar series, 5.7; length of mandible, 15.2; length of lower molar series, 5.7. Ex type in United States National Museum.

Subfamily **Neotominæ. Wood Rats.**

Genus Neotoma (72).

Neotoma fuscipes simplex True.

Neotoma macrotis simplex True, Proc. U. S. Nat. Mus., XVII, 1894, p. 354.

Neotoma fuscipes dispar Merr., Proc. Biol. Soc. Wash., IX, 1894, p. 124; Elliot, Syn. Mamm. N. Amer., 1901, p. 160 (F. C. M. Pub., Zool. Ser. II).

Type locality. Fort Tejon, California.

Geogr. Distr. Eastern basal slopes of the Sierra Nevada in Inyo and Kern Counties, California, and through Walker Pass to the foothill region at the southern end of the San Joaquin Valley, Upper Sonora Zone.

Genl. Char. Hairs of under surfaces unicolored to roots; anterior palatal spine touches the vomer.

Color. Entire upperparts fuscous and buff; underparts white to root of hairs; hands and feet white; tail black above, white beneath. Ex type in United States National Museum.

Measurements. Total length, 380; tail, 167; hind foot, 35; ear, 27.

Neotoma floridana illinoensis Howell.

Neotoma floridana illinoensis Howell, Proc. Biol. Soc. Wash., XXIII, 1910, p. 28.

Type locality. Wolf Lake, Union County, Illinois.

Geogr. Distr. Swamp region of southern Illinois and southward to northeastern Arkansas. Austroriparian division of lower austral zone.

Genl. Char. Like *N. baileyi* but tail darker and longer.

Color. Fore part of head and face gray, above mixed buff and black, sometimes ochraceous-buff and black; underparts grayish white with a yellow tinge; tail blackish above, grayish white below; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 395; tail, 190; hind foot, 37. Skull: Occipito-nasal length, 49; intertemporal width, 6.5; zygomatic width, 25; length of nasals, 19.6; palatal length, 8.6; length of upper molar series, 10; length of mandible, 26.6; length of lower molar series, 8.9. Ex type in United States National Museum.

Neotoma intermedia pretiosa Goldman.

Neotoma intermedia pretiosa Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 139.

Type locality. Matancita (also called Soledad), 50 miles north of Magdalena Bay, Lower California, Mexico. Altitude 100 feet.

Geogr. Distr. West coast and islands of Lower California from San Jorge (southwest of Comondu) south to Margarita Island, Lower Sonoran Zone.

Genl. Char. Larger and paler than *N. intermedia*, tail shorter; bullæ larger.

Color. Top of head and one-third of upperparts pale drab-gray mixed with dusky or rusty hairs; rest of upperparts pale ochraceous-buff, more ochraceous on dorsal line; cheeks and flanks pale drab-gray, underparts white; hands and feet white; tail above blackish, beneath grayish. Ex type in United States National Museum.

Measurements. Total length, 370; tail, 165; hind foot, 41. Skull: Total length, 47.4; Hensel, 39.6; zygomatic width, 24.6; intertemporal width, 6.4; length of nasals, 18.2; palatal length, 6.4; length of upper molar series, 8.4; length of mandible, 24; length of lower molar series, 8.4. Ex type in United States National Museum.

It will be noticed that the above description does not agree with that of Mr. Goldman (*l. c.*) as he makes the entire upperparts pale drab-gray, while the type has only about one-third of the upperparts of that color.

Neotoma intermedia perpallida Goldman.

Neotoma intermedia perpallida Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 139.

Type locality. San José Island, Gulf of California, Mexico, Lower Sonoran Zone.

Genl. Char. Similar to *N. intermedia* but smaller and paler.

Color. Top of head grizzled; upperparts pale drab-gray, tinged with rusty or cinnamon, darkest on lower back; cheeks and flanks light buff paler than upperparts; underparts white, under fur plumbeous; hands and feet white; tail above pale grayish, beneath white. Ex type in United States National Museum.

Measurements. Total length, 308.4; tail, 151.9; hind foot, 32.6. Skull: Badly broken. Zygomatic width, 22; length of nasals, 16.8; length of upper molar series, 9.6; length of mandible, 18.8; length of lower molar series, 8. Ex type in United States National Museum.

Mr. Goldman in his description makes the cheeks and flanks drab-gray, but in the type I find these parts are a light buff.

Neotoma intermedia vicina Goldman.

Neotoma intermedia vicina Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 140.

Type locality. Espiritu Santo Island, off east coast of southern Lower California, Mexico.

Geogr. Distr. Espiritu Santo Island, Gulf of California, Mexico. Lower Sonoran Zone and upper border of arid Tropical Zone.

Genl. Char. Nearest to *N. i. perpallida* but darker in color.

Color. Top of head and upperparts pale buff and rusty, plumbeous of under fur affecting slightly the general color; darkest on dorsal

region, rump like interscapular region; cheeks and flanks pale buff; underparts white; hands and feet white; tail above blackish, beneath grayish. Ex type in United States National Museum.

Measurements. Total length, 359; tail, 153; hind foot, 27.9. Skull: Total length, 43.9; intertemporal width, 5.5; zygomatic width, 23.5; length of nasals, 16.4; palatal length, 6.8; length of upper molar series, 8.1; length of mandible, 22.9; length of lower molar series, 7.9. Ex type in United States National Museum.

Mr. Goldman (*l. c.*) describes the upperparts of this form as a brownish drab, but I do not find it so in the type, but as given above, nor are the cheeks and flanks brownish drab, but decidedly a pale buff.

Neotoma abbreviata Goldman.

Neotoma abbreviata Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 140.

Type locality. San Francisco Island (near southern end of San José Island), Gulf of California, Mexico.

Geogr. Distr. Known only from type locality.

Genl. Char. Like *N. intermedia* but smaller; tail very short.

Color. Above pale drab-gray, dusky hairs mingled on top of head and back, rump tinged with cinnamon or pale rusty; underparts whitish, fur at base plumbeous; hands and feet white; tail above pale grayish, beneath white. Ex type in United States National Museum.

Neotoma ferruginea chamula Goldman.

Neotoma ferruginea chamula Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 141.

Type locality. Mountains near San Cristobal, Chiapas, Mexico. Altitude 8,400 feet.

Geogr. Distr. High mountains of Central Chiapas, Mexico, and southwestern Guatemala, Transition and Canadian Zones.

Genl. Char. Resembling *N. ferruginea* but darker. Size large.

Color. Upperparts tawny cinnamon-rufous, many hairs tipped with black; outer sides of limbs hair-brown, a brownish buff tinge on hind legs; underparts dull white; hands white; feet dusky; toes white; nose, lips and ankles dusky; tail blackish above, grayish brown below. Ex type in United States National Museum.

Measurements. Total length, 363; tail, 178; hind foot, 39. Skull: Total length, 45.6; zygomatic width, 23; intertemporal width, 5.8; length of nasals, 18.3; palatal length, 8.9; length of upper molar series, 9.3; length of mandible, 22.7; length of lower molar series, 9.6. Ex type in United States National Museum.

Neotoma albigula warreni Merriam.

Neotoma albigula warreni Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 143.

Type locality. Gaumes Ranch, Baca County (northwest corner), Colorado. Altitude 4,600 feet.

Geogr. Distr. Plains region of southeastern Colorado, and northeastern New Mexico, Upper Sonoran Zone.

Genl. Char. Skull compared with that of *N. albigula*, its nearest relative, is shorter and broader; rostrum more swollen; nasals broader, wider anteriorly; zygomatic arch more spreading; bullæ smaller.

Color. Upperparts gray, darkest on lower back; cheeks gray; underparts white; tail above black, beneath white; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 324; tail, 137; hind foot, 36. Skull: Occipito-nasal length, 43.5; Hensel, 36.2; zygomatic width, 23.4; intertemporal width, 5.7; length of nasals, 17.6; palatal length, 8; length of upper molar series, 8.4; length of mandible, 23.2; length of lower molar series, 8.7. Ex type in United States National Museum.

Neotoma albigula zacatecæ Goldman.

Neotoma leucodon zacatecæ Goldm., Proc. Biol. Soc. Wash., XVIII, 1905, p. 30.

Neotoma albigula zacatecæ Goldm., N. Am. Fauna, 1910, No. 31, 1910, p. 38.

Type locality. Plateado, Zacatecas, Mexico. Altitude 7000 feet.

Geogr. Distr. Sierra Madre in western Zacatecas, Mexico, Transition Zone.

Genl. Char. Similar to *N. leucodon* but darker, skull across anterior roots of zygomata more arched; rostrum more decurved; upper incisors smaller.

Color. Entire upperparts pale cinnamon; cheeks and sides paler; dorsal line darker, hairs black-tipped; rump reddish; upper lip dusky; chest and inguinal region pure white; rest of underparts creamy white; tail above brownish black, beneath white; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 358; tail, 162; hind foot, 37. Skull: Occipito-nasal length, 45.3; Hensel, 38.7; zygomatic width (broken); intertemporal width, 9.3; length of nasals, 16.6; length of upper molar series, 9; length of mandible, 23.7; length of lower molar series, 8.7. Ex type in United States National Museum.

Neotoma albigula seri Townsend.

Neotoma albigula seri Towns., Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 125.

Type locality. Tiburon Island, Gulf of California, Mexico.

Genl. Char. Very like *N. albigula;* skull has a narrower intertemporal area; narrower nasals, especially at anterior end.

Color. Head, entire upperparts and flanks light buff; the hairs on lower back and rump tipped with black, giving these parts a darker hue; entire underparts and inner side of limbs white; hands and feet white; outer side of arms light buff like flanks; outer side of hind legs darker, like rump; tail above blackish, thinly haired; beneath white; ears naked, dark. Ex type in United States National Museum.

Measurements. Total length, 334; tail, 154; hind foot, 35.

This rat in general appearance is almost precisely like *N. albigula,* but the skull of the type, that of a young adult male exhibits differences as mentioned above. Whether these would retain their comparative dimensions in a series of old adult examples is difficult to determine, but a comparison with such specimens, when obtained, is desirable. The type could not well be separated from *N. albigula* on its exterior appearance.

Neotoma insularis Townsend.

Neotoma insularis Towns., Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 125.

Type locality. Angel de la Guardia Island, Gulf of California, Mexico.

Genl. Char. Similar to *N. intermedia gilva,* but paler. Skull is broader, the rostrum and teeth heavier.

Color. Entire upperparts and head light buff, lined on lower back and rump with black; entire underparts, inner side of limbs, hands and feet white; outer side of limbs pale buff; tail above very sparsely covered with short white hairs, beneath white. Ex type in United States National Museum.

Measurements. Total length, 290; tail, 120; hind foot, 35. Skull: Occipito-nasal length, 38.8; Hensel, 36.8; zygomatic width, 21.8; intertemporal width, 5.2; length of nasals, 17.6; length of palate, 16.7; length of upper molar series, 8.5; length of mandible, 20.6; length of lower molar series, 8.6. Ex type in United States National Museum.

Neotoma chrysomelas Allen.

Neotoma chrysomelas Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 653.

Type locality. Matagalpa, Nicaragua.

Geogr. Distr. Known only from the type-locality. Altitude 3000 feet.

Color. Top of head and dorsal region to base of tail golden-brown lined with black; sides of head and body golden-brown; no black lines; throat, underparts and inner side of limbs white; outer side of limbs golden-brown, passing into dusky toward wrists and ankles; hands white, feet mixed white and dusky; tail hairy, black above grayish beneath; ears dark brown, mostly naked. Ex type in American Museum of Natural History.

Measurements. Total length, 380; tail, 170; hind foot, 36. Skull: Total length, 47; Hensel, 38.5; zygomatic width, 25; intertemporal width, 6.6; length of nasals, 19; length of upper molar series, 8.7; length of mandible, 24.1; length of lower molar series, 9.1. Ex type in American Museum of Natural History.

Subfamily **Microtinæ.**

Genus Evotomys (80).

Evotomys phæus Swarth.

Evotomys phæus Swarth, Univ. Calif. Publ. Zool., VII, 1911, p. 127.

Type locality. Marten Arm, Boca de Quadra, Alaska.

Evotomys dawsoni insularis Heller.

Evotomys dawsoni insularis Heller, Univ. Calif. Publ. Zool., V, 1910, p. 339.

Type locality. Canoe Passage, Hawkins Island, Prince William Sound, Alaska.

Evotomys gapperi athabascæ Preble.

Evotomys gapperi athabascæ Preble, N. Am. Fauna, 1908, No. 27, p. 178.

Type locality. Fort Smith, Slave River, near Alberta-Mackenzie Line, Canada.

Genl. Char. Equal in size to *E. gapperi;* face grayer, flanks and lower parts lighter. Skull larger; braincase less round.

Color. Red Phase. Nose and sides of face gray; underparts white; hands white; feet pale brown; tail above brown, white beneath. Ex type in United States National Museum.

Measurements. Total length, 148; tail, 38; hind foot, 18. Skull: Occipito-nasal length, 25.3; Hensel, 21.5; zygomatic width, 13.1; intertemporal width, 3.9; length of nasals, 7.8; length of upper molar series, 5.2; length of mandible, 13; length of lower molar series, 5.4. Ex type in United States National Museum.

Evotomys limitis Bailey.

Evotomys limitis Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 133.

Type locality. Mogollon Mountains, New Mexico. Altitude 8500 feet.

Genl. Char. Larger and grayer than *E. galei.* Skull and teeth heavier.

Color. Nose and face dark gray; top of head and upperparts pale chestnut; flanks buffy; underparts white; plumbeous of under-fur showing; tail reddish brown above, white beneath; hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 162; tail, 42; hind foot, 20. Skull: Occipito-nasal length, 26.1; Hensel, 22.9; zygomatic width, 14.7; intertemporal width, 3.9; length of nasals, 8; length of upper molar series, 5.3; length of mandible, 13.6. Ex type in United States National Museum.

Genus Microtus (81).

Microtus admiraltiæ Heller.

Microtus admiraltiæ Heller, Univ. Calif. Publ. Zool., V, 1909, p. 256.

Type locality. Windfall Harbor, Admiralty Island, Alaska.

Microtus miurus Osgood.

Microtus miurus Osgood, N. Am. Fauna, 1901, No. 21, p. 64.

Type locality. Head of Bear Creek in mountains near Hope City, Turnagain Arm, Cook Inlet, Alaska.

Genl. Char. Size small, tail short. Skull: Superior outline nearly straight, interorbital region slightly depressed; dorsal depressions between fronto-maxillary sutures; interparietal twice as long as wide; third upper molar with two closed triangles; first lower molar with five closed triangles, five inner and four outer salient angles.

Color. Fall Pelage. Upperparts, face, sides and flanks pale tawny, mixed slightly with black; underparts buffy; tail dusky above, on sides and beneath buffy. *Worn Summer Pelage.* Upperparts pale buffy gray, plumbeous at roots of hair; underparts whitish gray, faintly suffused with buff. Ex type in United States National Museum.

Measurements. Total length, 153; tail vertebræ, 31; hind foot, 90. Skull: Basal length, 26; zygomatic breadth, 15; mastoid breadth, 11.4; nasals, 7; alveolar length of upper molar series, 6.2. Ex type in United States National Museum.

Microtus miurus oreas Osgood.

Microtus miurus oreas Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 61.

Type locality. Toklat River, Alaskan Range, Alaska.

Genl. Char. Similar to *M. miurus*, but more ochraceous; tail shorter. Skull narrower; braincase longer; zygomata not so wide anteriorly.

Color. Upperparts and flanks clay-color, mixed on back with dusky; underparts pale ochraceous-buff; hands and feet cream-buff; tail pale ochraceous-buff, tinged with dusky above. Ex type in United States National Museum.

Measurements. Total length, 125; tail, 20; hind foot, 19.2. Skull: Occipito-nasal length, 26; Hensel, 24.5; zygomatic width, 13; intertemporal width, 3.4; length of nasals, 7.4; length of upper molar series, 5.2; length of mandible, 14.5; length of lower molar series, 5.7. Ex type in United States National Museum.

Microtus ochrogaster (Wagner).

Hypudæus ochrogaster Wagn., Schreb. Säugeth. Suppl., III, 1842, p. 592.

Arvicola austerus Le Conte, Proc. Acad. Nat. Sci. Phila., VI, 1853, p. 405.

Arvicola (Pedomys) cinnamomea Baird, Mamm. N. Am., 1857, p. 541.

Microtus austerus Elliot, Syn. N. Am. Mamm., F. C. M. Pub., II, 1901, p. 196, fig. 40, Zool. Ser.; *Id.* Check-List Mamm. N. Am. Cont. and West Indies, VI, 1905, p. 248.

Microtus ochrogaster Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 48.

Type locality. Racine, Racine County, Wisconsin.

Geogr. Distr. Central portion of Mississippi Valley from Wisconsin to southern Missouri and Fort Reno, Oklahoma, west to eastern Kansas and Nebraska.

In the synonymy of *Microtus austerus* (which was the name of this species in the Check-List, p. 248) *Hypudæus ochrogaster* is placed with a ?. Osgood (*l. c.*) has shown that his name belongs to the larger specimen of the two Wagner had for his type, and therefore it will be the one by which the species will be hereafter known. The type is in the Zoölogical Museum, Munich.

Microtus elymocetes Osgood.

Microtus elymocetes Osgood, Proc. Biol. Soc. Wash., XIX, 1906, p. 71.

Type locality. East side of Montague Island, Prince William Sound, Alaska.

Genl. Char. Size large; similar in color to *M. yakutatensis.* Skull large and heavy; zygomata deeply notched anteriorly.

Color. Upperparts raw-umber, color produced by a mixture of cinnamon and dusky; pectoral and inguinal regions grayish; rest of underparts clay-color; head and flanks like back; tail above dark brown, beneath whitish; hands dusky brown, edges whitish gray; feet grayish white at base, dusky brown apically. Ex type in United States National Museum.

Measurements. Total length, 201; tail, 40; hind foot, 23.5. Skull: Occipito-nasal length, 31; Hensel, 29; zygomatic width, 18.6; intertemporal width 3.9; length of nasals, 9.2; length of upper molar series, 7.4; length of mandible, 18.3; length of lower molar series, 7. Ex type in United States National Museum.

Microtus mordax bernardinus Merriam.

Microtus mordax bernardinus Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 145.

Type locality. Dry Lake, San Bernardino Mountains, California. Altitude, 9000 feet.

Genl. Char. Similar to *M. mordax* in general appearance. Skull heavier; nasals longer and broader; zygomatic arches wider, and zygomatic processes more developed.

Color. Upperparts snuff-brown; tips of hairs buffy; cheeks gray; flanks pale grayish brown mixed with buffy; underparts grayish white, plumbeous under-fur showing; tail brown above, whitish beneath; hands dusky, feet pale brown. Ex type in United States National Museum.

Measurements. Total length, 180; tail, 56; hind foot, 21. Skull: Occipito-nasal length, 26.5; Hensel, 23.3; zygomatic width, 15.3; length of nasals, 7.7; palatal length, 6; length of upper molar series, 6.3; length of mandible, 15.2; length of lower molar series, 9.2. Ex type in United States National Museum.

Microtus provectus Bangs.

Microtus provectus Bangs, Proc. N. Engl. Zoöl. Club, IV, 1908, p. 19.

Type locality. Block Island, Rhode Island.

Genl. Char. Larger than *M. pennsylvanicus*, belly gray. Skull longer than narrower.

Color. Upperparts yellow-bistre, some hairs with dusky brown tips; underparts gray; middle of belly and between arms whitish; hands and feet dusky brown; tail above dusky, beneath grayish.

Measurements. Total length, 169–184; tail, 44–56; hind foot, 22–23. Skull: Basal length, 28.6; Occipito-nasal length, 29; length of nasals, 8.8; zygomatic width, 17; interorbital width, 4; width of nasals, 3.4; mastoid width, 11; upper molar series, 7; length of palate to palatal notch, 14.6; to end of pterygoid, 19.4; length of palatal slits, 5.2; length of single half of mandible, 18.4; lower molar series, 6.8 (Bangs).

Microtus operarius endœcus Osgood.

Microtus operarius endœcus Osgood, N. Am. Fauna, 1909, No. 30, p. 23.

Type locality. Mouth of Charlie Creek, Yukon River, about fifty miles above Circle, Alaska.

Gen. Char. Like *M. operarius*, bullæ larger.

Color. Same as *M. operarius* (see Syn. N. Am. Mamm., 1901, p. 187). No difference in outward appearance. Type compared with *M. operarius* in United States National Museum.

Measurements. Total length, 179; tail, 42; hind foot, 20. Skull: Occipito-nasal length, 27.5; Hensel, 26.1; zygomatic width, 15.8; intertemporal width, 3.7; length of nasals, 7.8; length of upper molar series, 6.7; length of mandible, 15.3; length of lower molar series, 6.9. Ex type in United States National Museum.

Microtus coronarius Swarth.

Microtus coronarius Swarth, Univ. Calif. Pub. Zool., VII, 1911, p. 131.

Type locality. Egg Harbor, Coronation Island, Alaska.

Microtus (Lagurus) curtatus artemisiæ Anthony.

Microtus curtatus artemisiæ Anthony, Bull. Am. Mus. Nat. Hist., XXXII, 1913, p. 14.

Type locality. Ironside, Malheur County, Oregon. Altitude 4000 feet.

Gen. Char. Similar to *M. curtatus* but smaller. Skull shorter, nasals shorter; zygomatic width greater; mastoid breadth greater; bullæ smaller, upper tooth-row shorter.

Color. Upperparts and head gray, washed with pale bistre; lower rump buffy; underparts white, plumbeous base of hairs conspicuous; ears blackish, covered sparsely with buffy hairs; tail above bistre, beneath whitish. Ex type in American Museum of Natural History.

Measurements. Total length, 129; tail, 24; hind foot, 17. Skull: Occipito-nasal length, 23.2; Hensel, 20.8; zygomatic width, 14.2; intertemporal width, 3.2; length of nasals, 6.5; length of upper molar

series, 5.8; length of mandible, 13.1; length of lower molar series, 5.8. Ex type in American Museum of Natural History.

Microtus intermedius Taylor.

Microtus (Lagurus) intermedius Taylor, Univ. Calif. Publ. Zool., VII, 1911, p. 253.

Type locality. Head of Big Creek, Pine Forest Mountains, Humboldt County, Nevada. Altitude 8000 feet.

Subgenus E. **Chilotus.**

Microtus oregoni adocetus Merriam.

Microtus oregoni adocetus Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 145.

Type locality. South Yolla Bolly Mountain, California.

Genl. Char. Size large, ears small; skull like that of *M. oregoni* but larger; rostrum longer; nasals and teeth larger.

Color. Upperparts sepia to reddish sepia-brown; underparts buffy plumbeous, under fur showing; tail above dark brown, beneath paler; hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 172; tail, 49; hind foot, 21. Skull: Occipito-nasal length, 25.6; Hensel, 23.5; zygomatic width, 16; intertemporal width, 4.2; length of nasals, 7.4; palatal length, 13; length of upper molar series, 6; length of mandible, 16; length of lower molar series, 6.4. Ex type in United States National Museum.

Genus Ondatra.

Ondatra zibethica zalophus (Hollister).

Fiber zibethicus zalophus Hollist., Proc. Biol. Soc. Wash., XXIII, 1910, p. 1.

Type locality. Becharof Lake, Alaska.

Geogr. Distr. Alaskan Peninsula, north to Nushagak and east to the head of Cook Inlet.

Genl. Char. Tail short; hind foot small, redder in color than *O. z. spatulata;* molars small; zygomata less spreading anteriorly.

Color. Upperparts bistre, darkest on hips; flanks with a tinge of russet; underparts creamy white, washed with cinnamon; brown streak on chin; lips whitish; throat white. Ex type in United States National Museum.

Measurements. Total length, 59.4; tail, 185; hind foot, 66. Skull: Occipito-nasal length, 60.7; Hensel, 55.6; zygomatic width, 38.3; intertemporal width, 5.8; length of nasals, 20.9; breadth of nasals, 9.2; length of upper molar series, 14.4; length of mandible, 36.5; length of lower molar series, 13.8. Ex type in United States National Museum.

Ondatra zibethica mergens (Hollister).

Fiber zibethica mergens Hollist., Proc. Biol. Soc. Wash., XXIII, 1910, p. 1.

Type locality. Fallon, Churchill County, Nevada.

Geogr. Distr. Northern part of the Great Basin; southeastern Oregon, northeastern California, Nevada, and western Utah.

Genl. Char. Similar to *O. osoyoosensis* but paler; dorsal stripe distinct.

Color. Head blackish; cheeks rusty; upperparts grayish brown; dorsal line blackish; shoulders and flanks rusty; blackish brown spot on chin; underparts creamy white with a pale cinnamon central area. Ex type in United States National Museum.

Measurements. Total length, 540; tail, 240; hind foot, 70. Skull: Occipito-nasal length, 60.7; Hensel, 58.4; zygomatic width, 40; intertemporal width, 6.7; length of nasals, 21; length of upper molar series, 15.5; length of mandible, 32.3; length of lower molar series, 14.9. Ex type in United States National Museum.

Ondatra zibethica cinnamomina (Hollister).

Fiber zibethicus cinnamominus Hollist., Proc. Biol. Soc. Wash., XXIII, 1910, p. 125.

Type locality. Wakeeney, Trego County, Kansas.

Geogr. Distr. Great Central Plains region of western United States and Canada, from Manitoba south to northern Texas; east to central Iowa, and west to the Rocky Mountains.

Genl. Char. Smaller than *F. zibethicus;* color pale but more reddish.

Color. Nose seal-brown; cheeks clay-color; upperparts and flanks cinnamon-brown; dorsal region slightly darker; small brown spot on chin; underparts from throat and inner side of limbs creamy clay-color; tail dark brown; hands and feet drab. Ex type in United States National Museum.

Measurements. Total length, (skin), 436; tail, 190; hind foot, 45.4. Skull: Occipito-nasal length, 57.4; Hensel, 52; zygomatic width, 34; intertemporal width, 6.07; palatal length, 35; length of nasals, 19.5; length of upper molar series, 14.2; length of mandible, angle to symphysis, 28.2; length of lower molar series, 14.5. Ex type in United States National Museum.

Genus Synaptomys (83).

Synaptomys borealis (Richardson).

Arvicola borealis Richardson, Zool. Journ., III, 1828, p. 517.

Synaptomys (Mictomys) bullatus Preble, Proc. Biol. Soc. Wash., XV, 1902, p. 181; Elliot, Check-List Mamm. N. Am. Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 258, Zool. Ser. (desc.).

Synaptomys borealis Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 49.

[1] *Type locality.* Fort Franklin, Great Bear Lake, Mackenzie, Canada.

Mr. Osgood (*l. c.*) having examined Richardson's type of this species found it to be identical with *S. bullatus* Preble, and therefore Richardson's name *borealis* must in the future be the one by which the species is known.

Genus Dicrostonyx (85).

Dicrostonyx hudsonius grœnlandicus (Traill).

Mus grœnlandicus Traill, Scoresby's Journ. Voy. Northern Whale-Fishery, 1823, p. 416.

Type locality. Jameson's Land, Greenland.

Family Geomyidæ.

Genus Geomys (89).

Geomys breviceps llanensis Bailey.

Geomys breviceps llanensis Bailey, N. Am. Fauna, No. 25, 1905, p. 129.

Type locality. Llano, Llano County, Texas.

Genl. Char. Similar to *G. breviceps*, but paler and larger; skull more arched.

Color. Entire upperparts light liver-brown; back tinged with dusky; underparts creamy white; tail buff. Ex type in United States National Museum.

[1] The locality, given in the Check-List (*l. c.*), "Trout Rock near Fort Rae, Great Slave Lake, Mackenzie, Canada," is of course that of Preble's specimen, called by him '*bullatus*,' and now a synonym of *borealis*.

Measurements. Total length, 270; tail, 88; hind foot, 32. Skull: Occipito-nasal length, 47.2; Hensel, 40; zygomatic width, 29.6; intertemporal width, 6.3; length of nasals, 17.5; length of upper molar series, 8.5; length of mandible, 29; length of lower molar series, 8.4. Ex type in United States National Museum.

Genus Orthogeomys (90).

Straight-headed Pocket Gophers.

Orthogeomys cuniculus Elliot.

Orthogeomys cuniculus Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 234.

Type locality. Yautepec, State of Oaxaca, Mexico.

Geogr. Distr. Known only from type-locality.

Genl. Char. Size medium; no nasal pad; hair scanty; pelage rather harsh; tail long, naked; skull heavy; zygomata slender, narrowest posteriorly; nasals long.

Color. Upper and underparts vandyke-brown; flesh color of skin visible through the scant pelage; hands, feet and tail flesh color. Ex type in Field Museum of Natural History.

Measurements. Total length, 330; tail, 95; hind foot, 44; ear, 7. Skull: Total length, 59; Hensel, 50; zygomatic width, 26; intertemporal width, 12; palatal length, 26; median length of nasals, 23; width anteriorly, 7; width posteriorly, 4; length of upper molar series, 8; length of mandible, 47; length of lower molar series, 8. Ex type in Field Museum of Natural History.

Genus Heterogeomys (91).

Distinct Pocket Gophers.

661*a*. **Heterogeomys lanius** Elliot.

Heterogeomys lanius Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 235.

Type locality. Xuchil, State of Vera Cruz, Mexico.

Geogr. Distr. Known only from type locality.

Genl. Char. Size large; fur soft, woolly; color very dark. Skull very heavy; nasals long, widening greatly anteriorly; zygomata broad anteriorly; palatal arch pointed but not acute; pterygoids

graduated to acute point; incisors large, heavy, curved; mandible heavy, compact.

Color. Entire upperparts and sides blackish seal-brown; underparts dark hair-brown; numerous white hairs on rump at base of tail and all over the underparts, the base of tail being almost white; hands and feet very dark seal-brown; tail blackish, naked; claws very long, curved, horn-color. Ex type in Field Museum of Natural History.

Measurements. Total length, 361; tail, 90; hind foot, 54; ear, 10. Skull: Total length, 64; Hensel, 51; zygomatic width, 41.5; intertemporal width, 14; palatal length, 39; length of nasals, 26; width posteriorly, 6; width anteriorly, 10; length of upper molar series, 14; length of mandible to tip of incisors, 53; length of lower molar series, 13. Ex type in Field Museum of Natural History.

Genus Macrogeomys (92).

Large Pocket Gophers.

Macrogeomys matagalpæ Allen.

Macrogeomys matagalpæ Allen, Bull. Amer. Mus. Nat. Hist., XXVIII, 1910, p. 97.

Type locality. Pena Blanca, Matagalpa, Nicaragua.

Macrogeomys dariensis Goldman.

Macrogeomys dariensis Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 8.

Type locality. Cana, eastern Panama. Altitude, 2000 feet.

Genl. Char. Similar in size to *M. cavator*, tail longer; skull longer, narrower posteriorly; braincase and rostrum narrower; third upper molar shorter, heel less produced; incisors narrower.

Color. Head and upperparts chocolate-brown; rest of body nearly devoid of hair, only some scattering light brown ones; hands, feet and tail brownish. Ex type in United States National Museum.

Measurements. Total length, 401; tail, 132; hind foot, 53.5. Skull: Total length, 69.3; Hensel, 61.6; zygomatic width, 44.7; intertemporal width, 10.9; length of nasals, 27.8; length of upper molar series, 15.1; length of mandible, 48.2; length of lower molar series, 13.6. Ex type in United States National Museum.

Genus Thomomys (94).

Pocket Gophers.

Thomomys albatus Grinnell.

Thomomys albatus Grinnell, Univ. Calif. Pub. Zool., X, 1912, p. 172.

Type locality. West side of Colorado River, at old Hanlon Ranch, near Pilot Knob, Imperial County, California.

Thomomys talpoides agrestis Merriam.

Thomomys talpoides agrestis Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 144.

Type locality. Medano Ranch, San Luis Valley, Colorado.

Genl. Char. Like *T. talpoides* but color paler. Skull longer and narrower; zygomata less wide; jugal part of zygomatic arch narrower.

Color. Upperparts drab, sometimes the top of the head tinged with pale red; dusky ear-spots; underparts whitish, plumbeous under fur showing; tail above and beneath buffy; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 220; tail, 55; foot, 29. Skull: Occipito-nasal length, 41.2; Hensel, 35.6; zygomatic width, 23.6; intertemporal width, 6.7; length of nasals, 5.4; palatal length, 7.5; length of upper molar series, 7.8; length of mandible, 24.5; length of lower molar series, 8.2. Ex type in United States National Museum.

Thomomys talpoides bullatus Bailey.

Thomomys talpoides bullatus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 115.

Type locality. Powderville, Montana.

Genl. Char. Equal in size to *T. talpoides*, but the audital bullæ larger; teeth lighter and color paler.

Color. Crown bright buffy hazel, upperparts lighter; underparts buffy; ear-patch blackish; chin, hands, feet and tail white. In some examples the white on chin is absent. Type in United States National Museum.

Measurements. Total length, 238; tail, 72; foot, 30.

Thomomys talpoides caryi Bailey.

Thomomys talpoides caryi Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 115.

Type locality. Head of Trapper Creek, Bighorn Mountains, Wyoming. Altitude 9500 feet.

Genl. Char. About equal to *T. clusius*. Skull with wider interparietal, and smaller bullæ; color darker.

Color. Ear-patch blackish; nose plumbeous; upperparts dull grayish brown; chin white; underparts buffy; tail gray, tip whitish; hands and feet white. Type in United States National Museum.

Measurements. Total length, 196; tail, 54; foot, 26.

Thomomys talpoides nebulosus Bailey.

Thomomys talpoides nebulosus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 116.

Type locality. Sand Creek Cañon, Black Hills, Wyoming. Altitude, 3750 feet.

Genl. Char. Size equal to *T. talpoides*. Skull slender, dentition lighter.

Color. Blackish ear-patch; nose dusky; upperparts dull walnut-brown; underparts buffy; chin white; tail, hands and feet whitish gray. Type in United States National Museum.

Measurements. Total length, 230; tail, 66; foot, 32.

Thomomys pryori Bailey.

Thomomys pryori Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 116.

Type locality. Head of Sage Creek, Pryor Mountains, Montana. Altitude 6000 feet.

Genl. Char. Equal to *T. clusius*. Skull wide, nasals short, incisors projecting.

Color. Upperparts dull walnut-brown; nose plumbeous; cheeks dark gray; ear-patch black; underparts dark buff; tail, hands and feet buffy. Type in United States National Museum.

Measurements. Total length, 210; tail, 60; foot, 29.

Thomomys bottæ russeolus Nelson and Goldman.

Thomomys bottæ russeolus Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 25.

Type locality. San Angel, 30 miles west of San Ignacio, Lower California, Mexico.

Genl. Char. Color pale. Skull small, light; bullæ rounded.

Color. Upperparts ochraceous buffy; underparts creamy white; belly sometimes pale buff; hands, feet and tail covered sparsely with white hairs. Ex type in United States National Museum.

Measurements. Total length, 208; tail, 73; foot, 29.5. Skull: Occipito-nasal length, 36.6; Hensel, 33.3; zygomatic width broken; intertemporal width, 6.2; length of nasals, 13; palatal length, 6.3;

length of upper molar series, 7.5; length of mandible, 22.2; length of lower molar series, 7.9. Ex type in United States National Museum.

Thomomys bottæ minor Bailey.

Thomomys bottæ minor Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 116.

Type locality. Fort Bragg, Mendocino County, California.

Genl. Char. Smaller than *T. bottæ* with narrower skull, slender rostrum, and posterior end of nasals emarginate. Color darker.

Color. Nose, face and around ears blackish; upperparts dark cinnamon-brown and black; underparts ochraceous-buff; lips white; tail grayish; hands and feet white. Type in United States National Museum.

Measurements. Total length, 226; tail, 73; foot, 29.

Thomomys alpinus awahnee Merriam.

Thomomys alpinus awahnee Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 146.

Type locality. Yosemite Valley, Mariposa County, California.

Genl. Char. Size small; similar in color to *M. alpinus*. Skull small, nasals narrow anteriorly; bullæ small.

Color. Summer. Entire pelage varying from russet-brown to near ochraceous, brightest on sides of neck and flanks. *Winter.* Entire pelage dusky tinged with sepia-brown, sometimes ochraceous brightest on sides of neck and flanks; underparts mixed black and buff; tail above dark gray on basal half, whitish beneath, blackish at tip; hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 194; tail, 54; hind foot, 28. Skull: Occipito-nasal length, 34.8; Hensel, 3.5; zygomatic width, 21.4; intertemporal width, 6.5; length of nasals, 11.9; length of palate, 6.5; length of upper molar series, 7; length of mandible, 21.4; length of lower molar series, 6.6. Ex type in United States National Museum.

Thomomys apache Bailey.

Thomomys apache Bailey, Proc. Biol. Soc. Wash., XXIII, 1910, p. 79.

Type locality. Lake La Jara, on the Jicarilla Apache Indian Reservation, New Mexico. Altitude, 7500 feet.

Genl. Char. Size large; hind feet and tip of tail white.

Color. Upperparts sooty gray washed with buffy ochraceous, blackish dorsal stripe; tail blackish for three-fourths its length, remainder white; lips, hands and feet white, chin sometimes white;

underparts mixed black and buff. Ex type in United States National Museum.

Measurements. Total length, 250; tail, 85; hind foot, 34. Skull: Total length, 42.7; zygomatic width, 28; intertemporal width, 7.1; length of nasals, 14; mastoid breadth, 23; palatal length, 7; length of upper molar series, 8.5; length of mandible, 28.8; length of lower molar series, 7.9. Ex type in United States National Museum.

Thomomys canus Bailey.

Thomomys canus Bailey, Proc. Biol. Soc. Wash., XXIII, 1910, p. 79.

Type locality. Deep Hole at north end of Smoke Creek Desert, Washoe County, Nevada.

Genl. Char. Larger than *T. aureus;* colors pale.

Color. Ear-patch dusky; nose brownish, upperparts pale buff-gray; underparts, tail, hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 242; tail, 64; hind foot, 33. Skull: Occipito-nasal length, 37.8; Hensel, 35.2; intertemporal width, 6.1; zygomatic width, 28; length of nasals, 15; mastoid breadth, 23; palatal length, 6.3; length of upper molar series, 9; length of mandible, 24.9; length of lower molar series, 7.1. Ex type in United States National Museum.

Thomomys chrysonotus Grinnell.

Thomomys chrysonotus Grinnell, Univ. Calif. Publ. Zool., X, 1912, p. 174.

Type locality. Ehrenberg, Yuma County, Arizona.

Thomomys magdalenæ Nelson and Goldman.

Thomomys magdalenæ Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 24.

Type locality. Magdalena Island, Lower California, Mexico.

Genl. Char. Nearest to *T. b. anitæ* but paler; skull larger.

Color. Upperparts pale buffy, tinged with ochraceous; lips and underparts creamy white; hands, feet and tail sparsely covered with white hairs. Ex type in United States National Museum.

Measurements. Total length, 255; tail, 87; hind foot, 36. Skull: Total length, 43.2; Hensel, 38; zygomatic width, 29.1; intertemporal width, 6 4; length of nasals, 15.2; palatal length, 7.9; length of upper molar series, 8.9; length of mandible, 26.1; length of lower molar series, 9.6. Ex type in United States National Museum.

Thomomys mewa Merriam.

Thomomys mewa Merr., Proc. Biol. Soc. Wash., XXI, 1908, p. 146.

Type locality. Raymond, Madera County, California.

Genl. Char. Two phases of pelage,— summer varying from fulvous to ferruginous; winter dusky tinged with russet-brown. Skull small; nasals straight not narrowing posteriorly; anterior angle of zygomata thickened.

Color. Summer. Upper and underparts fulvous to ferruginous. *Winter.* Upperparts dusky, tinged with russet-brown; underparts plumbeous washed with buffy ochraceous; tail pale fulvous; hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 225; tail, 60; hind foot, 27. Skull: Occipito-nasal length, 37.5; Hensel, 35.5; zygomatic width, 2.5; intertemporal width, 6.3; length of nasals, 12; palatal length. 6.6; length of upper molar series, 7.4; length of lower molar series, 23.7. Ex type in United States National Museum.

Thomomys neglectus Bailey.

Thomomys neglectus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 117.

Type locality. Bear Flat Meadow, San Antonio Peak, San Gabriel Mountains, California. Altitude 6400 feet.

Genl. Char. Size medium; skull long, narrow; color very dark.

Color. Nose, face and ear-patch blackish; upperparts dark gray, hairs black-tipped; underparts dull buff; tail gray; hands and feet whitish. Type in United States National Museum.

Measurements. Total length, 229; tail, 77; foot, 31.

Thomomys mearnsi Bailey.

Thomomys mearnsi Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 117.

Type locality. Gray's Ranch, in Animas Valley, southwest corner of New Mexico.

Genl. Char. Smaller than *T. fulvus;* skull short, wide, projecting incisors very slender.

Color. Nose and ear-patches blackish; upperparts dull cinnamon; underparts pale cinnamon; tail buffy gray; hands and feet whitish. Type in United States National Museum.

Measurements. Total length, 220; tail, 69; foot, 31.

Thomomys fuscus columbianus Bailey.

Thomomys fuscus columbianus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 117.

Type locality. Touchet, Walla Walla County, Washington.

Genl. Char. Larger than *T. fuscus;* color paler.

Color. Ear and postauricular patch black; upperparts light brown; sides and belly pale buffy gray; nose slaty; tail gray, tip white; hands and feet whitish. Type in United States National Museum.

Measurements. Total length, 209; tail, 60; foot, 38.

Thomomys fuscus saturatus Bailey.

Thomomys fuscus saturatus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 117.

Type locality. Silver, in western corner of Missoula County, Montana. Altitude, 4300 feet.

Genl. Char. Larger than *T. fuscus;* skull long. high, braincase narrow, nasals wide; color darker.

Color. Nose plumbeous; ear-patch black; upperparts dark hazel; sides yellowish; underparts buffy; tail, hands and feet buffy gray. Type in United States National Museum.

Measurements. Total length, 225; tail, 77; foot, 30.

Thomomys fuscus loringi Bailey.

Thomomys fuscus loringi Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 118.

Type locality. South Edmonton, Alberta, Canada.

Genl. Char. Larger than *T. fuscus;* color duller; dentition heavier.

Color. Black ear-patch; nose slaty gray; upperparts dull russet-brown; sides buff; underparts buff, base of fur plumbeous; tail pale buff; hands and feet soiled whitish. Type in United States National Museum.

Measurements. Total length, 199; tail, 47; foot, 25.

Thomomys nevadensis atrogriseus Bailey.

Thomomys nevadensis atrogriseus Bailey, Proc. Biol. Soc. Wash., XXVII, 1914, p. 118

Type locality. Nampa, Idaho.

Genl. Char. Two phases, gray and black. Equal in size to *T. nevadensis;* skull wider at base; pterygoids thicker.

Color. Gray Phase. Nose and face blackish; ear-patch black; upperparts dark buffy gray; underparts rich buff; lining of cheek pouches black and white; chin white; tail, hands and feet white. Type in United States National Museum. *Black Phase.* Dull slaty black above and below; chin, toes and lower part of hands and feet white.

Measurements. Total length, 315; tail, 100; foot, 38.

Family **Heteromyidæ.**

Subfamily **Dipodomyinæ.**

Genus Dipodomys (95).

Dipodomys insularis Merriam.

Dipodomys insularis Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 77.

Type locality. San José Island, Gulf of California, Mexico.

Genl. Char. Size small, color pale; skull with maxillary arches broad.

Color. Upperparts pinkish buff, tinged with vinaceous on rump; lips, cheeks, underparts, limbs, hands and feet white; tail above and beneath with end-tuft purplish brown; sides white. Ex type in United States National Museum.

Measurements. Total length, 243; tail, 143; hind foot, 39. Skull: Occipito-nasal length, 35; Hensel, 22.4; zygomatic width, 17.1; intertemporal width, 13.4; length of nasals, 12.8; length of upper molar series, 4.4. Ex type in United States National Museum.

Dipodomys margaritæ Merriam.

Dipodomys margaritæ Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 76.

Type locality. Margarita Island, Lower California, Mexico.

Genl. Char. Size small, color pale. Skull with slender rostrum, small bullæ; zygomata squarely spreading.

Color. Like *D. arenivagus* but dark hairs intermixed with ground-color, pale pinkish buff lined with dark hairs; rest of pelage, with legs, hands and feet white; tail short, pale brown above and beneath, sides white, tuft purplish brown. Ex type in United States National Museum.

Measurements. Total length, 234; tail, 144; hind foot, 38. Skull: Occipito-nasal length, 33.6; Hensel, 22; zygomatic width, 17.1; intertemporal width, 12.9; length of nasals, 12.5; palatal length,—; length of upper molar series, 4.3; length of mandible, 12.8; length of lower molar series, 4.2. Ex type in United States National Museum.

Dipodomys merriami kernensis Merriam.

Dipodomys merriami kernensis Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 77.

Type locality. Onyx, west end of Walker Pass, Kern County, California.

Genl. Char. Size small, color pale, similar to *D. nevadensis.* Skull square, zygomata widely spreading; nasals long and mastoids small.

Color. Head and upperparts pinkish buff; rest of pelage, limbs, hands and feet pure white; tail Prout's brown, sides white and tuft purplish brown. Ex type in United States National Museum.

Measurements. Total length, 240; tail, 140; hind foot, 37. Skull: Occipito-nasal length, 32.5; Hensel, 21.5; zygomatic width, 16; intertemporal width, 13.1; length of nasals, 12.6; palatal length, 7.1; length of upper molar series, 4.5; length of mandible, 3.2; length of lower molar series, 3.6. Ex type in United States National Museum.

Dipodomys platycephalus Merriam.

Dipodomys platycephalus Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 76.

Type locality. Calmalli, Lower California, Mexico.

Genl. Char. Similar to *D. insularis* but darker; tail sooty. Skull larger, with larger mastoids.

Color. General color ochraceous-buff lined with dark hairs, ankles same hue; underparts white; limbs, hands and feet white; tail above and beneath mixed buff and brown; sides white, long tuft at top purplish. Ex type in United States National Museum.

Measurements. Total length, 238; tail, 145; hind foot, 38. Skull: Occipito-nasal length, 34; Hensel, 21.2; zygomatic width, 37.8; intertemporal width, 14.1; length of nasals, 13.8; palatal length, 7.3; length of upper molar series, 4.2; length of mandible, 10.5; length of lower molar series, 4.4. Ex type in United States National Museum.

Dipodomys nelsoni Merriam.

Dipodomys nelsoni Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 75.

Type locality. La Ventura, Coahuila, Mexico.

Genl. Char. Smaller than *D. spectabilis;* zygomatic arch not so wide; mastoids of nearly equal size.

Color. Upperparts grizzled buff, tinged on rump and flanks with vinaceous; underparts white, outer side of limbs white, inner side blackish brown; tail above black; lateral white stripe for about two-thirds the length beneath dusky brown, end not tufted, white. Ex type in United States National Museum.

Measurements. Total length, 330; tail, 204; hind foot, 50. Skull: Occipito-nasal length, 41.3; Hensel, 29.1; zygomatic width, 21.1;

intertemporal width, 14.2; length of nasals, 13.4; palatal length, 9.2; length of upper molar series, 6; length of mandible, 13.8; length of lower molar series, 5.2. Ex type in United States National Museum.

Dipodomys spectabilis cratodon Merriam.

Dipodomys spectabilis cratodon Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 75.

Type locality. Chicalote, Aguas Calientes, Mexico.

Genl. Char. Similar in appearance to *D. spectabilis*, but having a larger skull, and heavier and broader incisors.

Color. Top of head pale ochraceous-buff; upperparts ochraceous-buff, the black bases of hairs showing; flanks clear buff; spot behind ears, lips, root of tail and entire rest of pelage including limbs, hands and feet, pure white; tail above on basal half dark brown, remainder black, tip white; beneath dark brown. Ex type in United States National Museum.

Measurements. Total length, 324; tail, 217; hind foot, 52.5. Skull: Occipito-nasal length, 45.2; Hensel, 32.7; zygomatic width, 24.1; intertemporal width, 17.5; length of nasals, 16.5; palatal length, 11.8; length of upper molar series, 6.2; length of mandible, 16.8; length of lower molar series, 6.1. Ex type in United States National Museum.

Genus Perodipus (96).

Perodipus perplexus Merriam.

Perodipus perplexus Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 79.

Type locality. Walker Basin, Kern County, California.

Genl. Char. Skull resembles that of *P. panamintinus*, and is squarish in shape, and smaller, with interparietal and basi-occipital narrower.

Color. Nose and space before eyes pale ochraceous-buff; top of head and upperparts ochraceous-buff, mixed with black; flanks clear ochraceous-buff; cheeks, usual streak across thighs, entire underparts, limbs, hands and feet pure white; thighs like upperparts; tail dark brown for half the length from base, remainder white. Ex type in United States National Museum.

Measurements. Total length, 213; tail, 186; hind foot, 41.9. Skull: Occipito-nasal length, 40; Hensel, 27; zygomatic width, 19.8; intertemporal width, 12.3; length of nasals, 13.9; length of upper molar series, 4.8; length of mandible, 12.5; length of lower molar series, 4.9. Ex type in United States National Museum.

Perodipus morroensis Merriam.

Perodipus morroensis Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 78.

Type locality. Morro, San Luis Obispo County, California.

Genl. Char. Similar to *P. simulans* but with smaller ears and blacker nose-bar. Skull has a broad zygomatic arch, small mastoids and slender incisors.

Color. Spot on nose and whisker-patches jet black, forming a bar across face; upperparts ochraceous-buff; tinged with olivaceous; front of face grizzled buffy; top of head, like back; flanks clear ochraceous-buff, rest of pelage white; thighs like back; limbs, hands and feet white; tail above blackish brown on basal half, purplish brown on remainder; sides white, beneath dark brown. Ex type in United States National Museum.

Measurements. Total length, 300; tail, 182; hind foot, 45. Skull: Occipito-nasal length, 38.8; Hensel, 26.7; zygomatic width, 20; intertemporal width, 13.2; length of nasals, 13.8; palatal length, 9.6; length of upper molar series, 5; length of mandible, 13; length of lower molar series, 4.7. Ex type in United States National Museum.

Perodipus stephensi Merriam.

Perodipus stephensi Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 78.

Type locality. San Jacinto Valley, Riverside County, California.

Genl. Char. Like *P. streatori*, but with slight difference in skull. Cranial shield broader posteriorly; mastoid bullæ fuller, incisors weaker.

Color. Head and upperparts mixed black and ochraceous-buff, black predominating; flanks ochraceous-buff, no black; black line across face, curving down to end of nose; spot behind eyes, one behind ears, lips, entire underparts, arms on outer and inner sides, inner side of hind legs, hands and feet pure white; tail above blackish, including tuft; sides white, beneath dark brown. Ex type in United States National Museum.

Measurements. Total length, 294; tail, 175; hind foot, 39. Skull: Occipito-nasal length, 38.6; Hensel, 26.5; zygomatic width, 18.6; intertemporal width, 12.4; length of nasals, 14.1; length of upper molar series, 4.9; length of mandible, 14.2; length of lower molar series, 4.6. Ex type in United States National Museum.

Perodipus simulans peninsularis Merriam.

Perodipus simulans peninsularis Merr., Proc. Biol. Soc. Wash., XX, 1907, p. 79.

Type locality. Santo Domingo, Lower California, Mexico.

Genl. Char. Similar to *D. simulans* but larger; general color paler;

skull like that of *D. simulans* with slight variations. Nose-patch not connected with whisker marks.

Color. General hue pale buff slightly lined with dark hairs; flanks chamois; spot over eye and one behind ears, lips, entire underparts, stripe over thigh, hands and feet and root of tail white; face in front of eyes creamy white; tail dark brown above and below; sides white, tuft dusky. Ex type in United States National Museum.

Measurements. Total length, 312; tail, 203; hind foot, 45. Skull: Occipito-nasal length, 38.7; Hensel, 23; zygomatic width, 20.9; intertemporal width, 11.5; length of nasals, 13; length of palate, 7.5; length of upper molar series, 5.2; length of mandible, 13.8; length of lower molar series, 5.1. Ex type in United States National Museum.

Subfamily **Heteromyinæ.**

Genus Perognathus (98). Pocket Mice.

Subgenus **Perognathus.**

Perognathus fasciatus litus Cary.

Perognathus fasciatus litus Cary, Proc. Biol. Soc. Wash., XXIV, 1911, p. 61.

Type locality. Sun, Sweetwater Valley, Wyoming.

Genl. Char. Smaller than *T. fasciatus;* hind foot slightly larger; color pale.

Color. Upperparts and flanks cream-buff, slightly lined with black; underparts pure white; orbital ring and lateral line pale cream-buff; tail above dusky, beneath white; hands and feet white. Ex type in United States National Museum.

Measurements. Total length, 128; tail, 59; hind foot, 18. Skull: Occipito-nasal length, 22.2; Hensel, 15.6; zygomatic width, 10.2; intertemporal width, 4.7; length of nasals, 7; length of upper molar series, 3.3; length of mandible, 8.6; length of lower molar series, 2.8. Ex type in United States National Museum.

Perognathus flavescens perniger Osgood.

Perognathus flavescens perniger Osgood, Proc. Biol. Soc. Wash., XVII, 1904, p. 127.

Type locality. Vermillion, Clay County, South Dakota.

Genl. Char. Like *P. flavescens* in size, and skull, but back black.

Color. Head, top and sides mixed black and ochraceous-buff;

subauricular spot bright buff; upperparts black; lateral line ochraceous-buff; underparts ochraceous-buff; chin and narrow line on throat and breast white; tail above dusky, beneath whitish, sides buffy; hands and feet buffy; ears brownish black edged with buff. Ex type in United States National Museum.

Measurements. Total length, 140; tail, 68; hind foot, 17. Skull: Occipito-nasal length, 20.6; Hensel, 13.9; zygomatic width, 10.6; intertemporal width, 4.8; length of nasals, 8.3; length of upper molar series, 2.8; length of mandible, 8.2; length of lower molar series, 2.9. Ex type in United States National Museum.

[1] **Perognathus flavescens copei** Rhoads.

Perognathus flavescens copei Rhoads, Proc. Acad. Nat. Sci. Phila., 1893, p. 404.

Cope's Pocket Mouse.

Type locality. Mobeetie, Wheeler County, Texas.

Genl. Char. Size small; tail hairy, penicillate.

Color. Head and upper back grizzled blackish fawn; rump, thighs, and lateral line cinnamon; underparts, hands and feet white.

Measurements. Total length, 114; tail, 49; hind foot, 15. Skull: Total length, 19.5; Hensel, 14.5; mastoid breadth, 10; nasals, 7; interorbital constriction, 4.5; mandible, 9.7; height of coronoid process from angle, 4.2.

This is considered by Bailey (N. Am. Fauna, 1905, No. 25, p.143) to possess sufficient characters to be recognized as a bright-colored race of *P. flavescens.*

Perognathus bombycinus Osgood.

Perognathus bombycinus Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 19.

Type locality. Yuma, Arizona.

Genl. Char. Similar to *P. panamintinus bangsi.* Skull with large mastoids and nearly square interparietal.

Color. Upperparts pale vinaceous-buff, slightly lined with dusky, white spots at base of ear; underparts white. Ex type in United States National Museum.

Measurements. Total length, 131–140; tail vertebræ, 77–82; hind foot, 18.5. Skull: Occipito-nasal length, 20.4; interorbital constriction, 4.4; nasals, 7; interparietal, 2.5 × 2.7; maxillary toothrow, 3. Ex type in United States National Museum.

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[1] This in the Check-List is given as a synonym of *P. flavescens,* p. 301.

Perognathus longimembris neglectus Taylor.

Perognathus longimembris neglectus Taylor, Univ. Calif. Publ. Zool., X, 1912, p. 155.

Type locality. McKittrick, Kern County, California.

Perognathus xanthonotus Grinnell.

Perognathus xanthonotus Grinnell, Proc. Biol. Soc. Wash., XXV, 1912, p. 128.

Type locality. Freeman Cañon, east slope of Walker Pass, Kern County, California. Altitude 4000 feet.

Subgenus **Chœtodipus.**

Perognathus baileyi insularis Townsend.

Perognathus baileyi insularis Towns., Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 122.

Type locality. Tiburon Island, Gulf of California, Mexico.

Genl. Char. Similar to *P. penicillatus pricei* but not so red, and the tail much longer. Skull larger, broader and longer.

Color. Entire upperparts vinaceous-buff lined with black; no lateral stripe; underparts and inner side of limbs white; outerside like upperparts; hands and feet white; tail above, basal half grayish brown, remainder with tuft darker brown, beneath white. Ex type in United States National Museum.

Measurements. Total length, 212; tail, 118; hind foot, 27. Skull: Occipito-nasal length, 28.1; Hensel, 19.3; zygomatic width, 12.1; intertemporal length, 6.4; length of nasals, 12.2; length of upper molar series, 3.9; length of mandible, 14.4; length of lower molar series, 3.2. Ex type in United States National Museum.

Perognathus penicillatus ammophilus Osgood.

Perognathus penicillatus ammophilus Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 20.

Type locality. Margarita Island, Lower California, Mexico.

Genl. Char. Size about as that of *P. p. siccus;* color paler; mastoids smaller.

Color. Like *P. p. arenarius;* upperparts écru-drab; no lateral line; underparts creamy. Ex type in United States National Museum.

Measurements. Total length, 171–188; tail vertebræ, 100–113; hind foot, 23.5–25.5. Skull: Greatest length, 26.1; basilar length, 18; mastoid width, 13.2; zygomatic width, 13.1; interorbital constriction, 6.6; nasals, 9.4; interparietal, 7.3 × 3.8; maxillary toothrow, 3.8. Ex type in United States National Museum.

Perognathus penicillatus seri Nelson.

Perognathus penicillatus seri Nelson, Proc. Biol. Soc. Wash., XXV, 1912, p. 116.

Perognathus penicillatus goldmani Towns., Bull. Amer. Mus. Nat. Hist., XXXI, 1912, p. 122 (*nec* Osgood, N. Am. Fauna, 1900, No. 18, p. 54).

Type locality. Tiburon Island, Gulf of California, Mexico.

Genl. Char. Much smaller than *P. penicillatus*, and without gray tints in the coloring.

Color. Head and upperparts pale ochraceous-buff lined with black; darkest on lower back and rump; entire underparts and inner side of limbs white; outer side of limbs like upperparts; indistinct deep buff line along flanks; hands and feet white; tail dusky, including pencil, beneath white. Ex type in United States National Museum.

Measurements. Total length, 171; tail, 90; hind foot, 23. Skull: Occipito-nasal length, 28.4; Hensel, 20; zygomatic width, 15.3; intertemporal width, 7; length of nasals, 11.9; length of upper molar series, 4.1; length of mandible, 12.8; length of lower molar series, 3.8. Ex type in United States National Museum.

Perognathus penicillatus siccus Osgood.

Perognathus penicillatus siccus Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 20.

Type locality. Ceralbo Island, Lower California.

Genl. Char. Larger than *P. p. arenarius*, rump bristles rarely present; color dimorphic. Skull large, heavy; mastoids large.

Color. Upperparts buffy fawn; narrow lateral line pinkish buff; underparts creamy — gray phase has upperparts ranging from drab-gray to broccoli-brown. Ex type in United States National Museum.

Measurements. Total length, 165–187; tail vertebræ, 92–102; hind foot, 23.5–26. Skull: Greatest length, 25.9; basilar length, 17.7; mastoid width, 13.8; zygomatic width, 12.6; interorbital constriction, 6.6; nasals, 8.9; interparietal, 7.2 × 3.6; maxillary toothrow, 4. Ex type in United States National Museum.

Perognathus spinatus occultus Nelson.

Perognathus spinatus occultus Nelson, Proc. Biol. Soc. Wash., XXV, 1912, p. 116.

Perognathus spinatus nelsoni Towns., Bull. Amer. Mus. Nat. Hist., XXXI, 1912, p. 122 (*nec* Merr., Proc. Acad. Nat. Sci. Phila., 1894, p. 266).

Type locality. Carmen Island, Gulf of California, Mexico.

Genl. Char. Darker than *P. spinatus;* tail shorter.

Color. Head and upperparts buff, heavily lined with black, darkest on lower back; entire underparts and inner side of limbs white; outer side of limbs like upperparts; hands and feet white; tail above dusky including the pencil; beneath white. Ex type in American Museum of Natural History.

Measurements. Total length, 172; tail, 93; hind foot, 24. Skull: Occipito-nasal length, 26; Hensel, 17.5; zygomatic width, 13; intertemporal width, 6.5; length of nasals, 9.6; length of upper molar series, 3.9; length of mandible, 11.4; length of lower molar series, 3.7. Ex type in American Museum of Natural History.

Perognathus spinatus magdalenæ Osgood.

Perognathus spinatus magdalenæ Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 21.

Type locality. Magdalena Island, Lower California, Mexico.

Genl. Char. Similar to *P. s. peninsulæ;* mastoids smaller; rostrum longer.

Color. Like *P. s. peninsulæ* but more vinaceous; upperparts fawn color lined with dusky; narrow lateral line fawn color; underparts creamy white. Ex type in United States National Museum.

Measurements. Total length, 188–200; tail vertebræ, 110–122; hind foot, 23.5–25. Skull: Greatest length, 26.4; basilar length, 17.9; mastoid width, 12.6; zygomatic width, 12.8; interorbital constriction, 6.9; nasals, 10.5; interparietal, 8.1 × 3.6; maxillary toothrow, 4.3. Ex type in United States National Museum.

Genus Heteromys (99). Spiny Pouched Rats.

Subgenus **Heteromys.**

Heteromys zonalis Goldman.

Heteromys zonalis Goldm., Smith. Misc. Coll., LVI, 1912, No. 36, p. 9.

Type locality. Rio Indio, near Gatun, Canal Zone, Panama.

Genl. Char. Similar to *H. desmarestianus* but darker, with the slender hairs on back paler; no lateral line; skull heavy.

Color. Upperparts blackish; flanks and outer side of limbs mouse-gray; underparts, inner side of limbs, the line on hind legs going to the metatarsus, cream-buff; hands and feet buff; tail above blackish, below whitish at base, brownish all around. Ex type in United States National Museum.

Measurements. Total length, 263; tail, 134; hind foot, 35. Skull:

Occipito-nasal length, 36.5; Hensel, 25.5; zygomatic width, 17; intertemporal width, 10; length of nasals, 15.2; width of braincase, 15.2; length of upper molar series, 5.3; length of mandible, 5.3; length of lower molar series, 4.8. Ex type in United States National Museum.

Mr. Goldman states that the underparts and line along the flanks and inner side of limbs and feet are white, but I find these parts in the type a cream-buff, the feet being a little darker.

Heteromys temporalis Goldman.

Heteromys temporalis Goldm., N. Amer. Fauna, No. 34, 1911, p. 26.

Type locality. Motzorongo, Vera Cruz, Mexico.

Geogr. Distr. Heavily forested eastern basal slopes of mountains in central part of the state of Vera Cruz, Mexico. Humid Tropical Zone.

Genl. Char. Size large; no lateral line; skull with slender rostrum; braincase broad and flat.

Color. Head and upperparts mixed black and ochraceous, darkest on lower back, and outer side of arms brown with buff hairs intermingled; dorsal line darker, underparts, hands and feet yellowish white; ankles dusky; tail above dusky, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 220; tail, 180; hind foot, 37. Skull: Occipito-nasal length, 38.9; Hensel, 27.5; zygomatic width, 17.8; intertemporal width, 10.2; length of nasals, 16.2; length of upper molar series, 5.3; length of mandible, 17.5; length of lower molar series, 5. Ex type in United States National Museum.

In the original description of this species, the head and upperparts and outer side of fore legs are said to be mouse-gray. I found nothing whatever of this color in the type, the parts being as described above; also the feet and hands were not white but showed a strong yellowish tint.

Heteromys fuscatus Allen.

Heteromys fuscatus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 652.

Type locality. Tuma, Nicaragua.

Heteromys panamensis Goldman.

Heteromys panamensis Goldm., Smith Misc. Coll., LVI, 1912, No. 36, p. 9.

Type locality. Cerro Azul, near headwaters of the Chagres River, Panama. Altitude, 2800 feet.

Genl. Char. Similar to *H. repens*, but darker; rostrum broader posteriorly; interparietal broader.

Color. Entire upperparts blackish, nearly pure black on rump, with ochraceous buffy hairs scattered throughout the dark ones; outer side of hind legs black; outer side of arms and flanks slaty gray, the ochraceous-buff hairs interspersed; lateral line ochraceous-buff; underparts white; hands slaty gray; fingers and feet whitish; ankles and third of tarsus dusky; tail above blackish, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 283; tail, 148; hind foot, 35. Skull: Occipito-nasal length, 34.1; Hensel, 24.2; zygomatic width, 17.1; intertemporal width, 9.4; length of nasals, 14.4; width of braincase, 15.2; length of upper molar series, 5.3; length of mandible, 15.4; length of lower molar series, 4.6. Ex type in United States National Museum.

Heteromys australis conscius Goldman.

Heteromys australis conscius Goldm., Smith. Misc. Coll., LX, 1913, p. 8.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Genl. Char. Similar to *H. australis* but darker.

Color. Entire upperparts slaty black lined with gray; lips, inner side of limbs, and underparts of body whitish; forearms white and gray mixed; tail above brownish, beneath lighter; ankles dusky; hands and feet grayish; fingers and toes whitish. Ex type in United States National Museum.

Measurements. Total length, 260; tail, 133; hind foot, 32. Skull: Occipito-nasal length, 34.7; Hensel, 23.9; zygomatic width, 16.5; intertemporal width, 8.3; length of nasals, 14.4; length of upper molar series, 5.4; length of mandible, 15.9; length of lower molar series, 5.1. Ex type in United States National Museum.

Heteromys crassirostris Goldman.

Heteromys crassirostris Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 10.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama. Altitude 5000 feet.

Color. Head and upperparts mixed black and ochraceous; outer side of limbs dark, with a gray shade; lips, throat, and under side of arms white; rest of underparts and under side of thighs yellowish; hands dusky to near fingers which are white; feet whitish; tail brown above, whitish beneath. Ex type in United States National Museum.

Measurements. Total length, 267; tail, 132; feet, 32.5. Skull: Greatest length, 34.5; Hensel, 23.4; zygomatic width, 16.3; intertemporal width, 9.3; length of nasals, 14; width of braincase in front

of auditory meatus, 14.6; length of upper molar series, 5.3; length of mandible, 15.2; length of lower molar series, 5.2. Ex type in United States National Museum.

[1] Genus Liomys.

Liomys pictus escuinapæ (Allen).

Heteromys pictus escuinapæ Allen, Bull. Am. Mus. Nat. Hist., XXII, 1906, p. 211.

Type locality. Escuinapa, Sinaloa, Mexico.

Geogr. Distr. Coastal Plains and Pacific slope of Sierra Madre from southern part of the state of Sinaloa, southward into typical *L. pictus* in southern portion of the Province of Tepic and northwestern part of the State of Jalisco, arid tropical and lower Sonoran Zone.

Genl. Char. Similar to *L. pictus* but paler; posterior border of nasals emarginate.

Color. Top of head buff and black, the latter being the tips of the hairs; upperparts from head to rump orange-buff and black, grading into brownish gray on rump and outer side of limbs; flanks orange-buff tempered by the gray bases of the hairs showing; orange-buff lateral line, lips, inner side of limbs white; hands and feet pale brown; tail blackish above, brownish beneath. Ex type in American Museum of Natural History.

Measurements. Total length, 216; tail, 108, hind foot, 24. Skull: Total length, 30; Hensel, 21; zygomatic width, 14.1; intertemporal width, 7.2; length of nasals, 10.9; length of upper molar series, 5; length of mandible, 12.5; length of lower molar series, 4.5. Ex type in American Museum of Natural History.

Liomys vulcani (Allen).

Heteromys vulcani Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 652.

Type locality. Volcan de Chinandega, Nicaragua. Altitude about 4000 feet.

Geogr. Distr. Vicinity of the Volcan de Chinandega in the mountains of extreme western Nicaragua.

Color. The hairs on top of head and back are gray at base with black tips; flanks grayish brown, as is also the outer side of limbs; lips, throat, inner side of limbs, hands and feet pure white; tail above blackish, beneath white. Ex type in American Museum of Natural History.

[1] Employed as a subgenus in the Check-List.

Measurements. Total length, 220; tail, 113; hind foot, 25. Skull: Total length, 30.9; Hensel, 22.3; zygomatic width, 14.1; intertemporal width, 6.8; length of nasals, 10.9; length of upper molar series, 4.2; length of mandible, 12.9; length of lower molar series, 4.9. Ex type in American Museum of Natural History.

Liomys irroratus pretiosus Goldman.

Liomys irroratus pretiosus Goldm., N. Am. Fauna, No. 34, 1911, p. 58.

Type locality. Metlaltoyuca, Puebla, Mexico.

Geogr. Distr. Humid basal mountain slopes in extreme eastern part of the State of San Luis Potosi, northern portion of the states of Queretaro, eastern Puebla, and northern part of the State of Vera Cruz, Mexico. Humid Tropical Zone.

Genl. Char. Similar to *L. alleni* but darker; lateral line distinct; hind foot five-tuberculate; skull small, rostrum expanded anteriorly; frontals narrow.

Color. Head and upperparts to hips narrowing to root of tail mixed black and ochraceous-buff; flanks, hips, and outer side of legs pale mouse-gray; lateral line pale ochraceous-buff; hinderparts, hands and feet whitish buff; tail above dusky, beneath whitish, tip all dark. Ex type in United States National Museum.

Measurements. Total length, 263; tail, 145; hind foot, 34. Skull: Occipito-nasal length, 32; Hensel, 23.6; zygomatic width, 15.2; intertemporal width, 7.5; length of nasals, 13.2; length of upper molar series, 4.8; length of mandible, 14.5; length of lower molar series, 4.4. Ex type in United States National Museum.

The above description varies considerably from that given by Mr. Goldman, but I failed to discern any mouse-gray on the top of head and back to the hips.

Liomys irroratus jaliscensis (Allen).

Heteromys jaliscensis Allen, Bull. Am. Mus. Nat. Hist., XXII, 1906, p. 251.

Type locality. Las Canoas, about 20 miles west of Zapotlan, Jalisco, Mexico. Altitude 7000 feet.

Geogr. Distr. Tableland region of the State of Jalisco, and northwestern part of the State of Michoacan. Mainly lower Sonoran Zone.

Color. Entire upperparts orange-buff lined with black; flanks paler; outer side of limbs pale grayish brown; a buff lateral line from shoulder to thigh; entire underparts, hands and feet pure white; tail above blackish brown, beneath white. Ex type in American Museum of Natural History.

Measurements. Total length, 232; tail, 112; hind foot, 27.5. Skull: Total length, 31.8; Hensel, 22.7; zygomatic width, 14.9; intertemporal width, 8; length of nasals, 13.5; length of upper molar series, 4.8; length of mandible,—; length of lower molar series, 13.2. Ex type in American Museum of Natural History.

Dr. Allen has described this species (*l. c.*) as "dusky gray" but there is not a vestige of that hue anywhere visible, except upon the outer side of the limbs, which have a grayish tint.

Liomys guerrerensis Goldman.

Liomys guerrerensis Goldm., N. Am. Fauna, No. 34, 1911, p. 62.

Type locality. Omilteme, Guerrero, Mexico.

Geogr. Distr. Humid forested Pacific slopes of the Sierra Madre in the vicinity of the type-locality. Humid Tropical Zone.

Genl. Char. Similar to *L. irroratus*, but darker skull with heavy rostrum; narrow palate; frontals broad.

Color. Top of head and upperparts glossy black grizzled with buff; sides of body and outer side of hind legs mouse-gray; lateral line faint buff; outer side of arms grayish; underparts, hands and feet white; heels and inner side of ankles brownish black; tail above black, beneath white; ears black, edge white. Ex type in United States National Museum.

Measurements. Total length, 255; tail, 127; hind foot, 34. Skull: Occipito-nasal length, 32.9; Hensel, 24; zygomatic width, 16; intertemporal width, 8.6; length of nasals, 13.2; length of upper molar series, 5.5; length of mandible, 15.4; length of lower molar series, 5.1. Ex type in United States National Museum.

Family **Zapodidæ. Jumping Mice.**

Subfamily **Zapodinæ.**

Genus Zapus (100).

Zapus luteus Miller.

Zapus luteus Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 253.

Type locality. Espagnola, New Mexico. Type in United States National Museum.

Genl. Char. Resembling *Z. l. alleni* Elliot, but upperparts brighter, back less dark. Skull smaller and more slender.

Color. Upperparts ochraceous; dorsal area very little of this color evident, but grading into sides without line of demarcation;

underparts white; tail brown above, whitish beneath; hands and feet whitish. Ex type in United States National Museum.

Measurements. Total length, 224; tail, 138; hind foot, 31. Skull: Occipito-nasal length, 23.8; Hensel, 17.9; zygomatic width, 11.2; intertemporal width, 4.5; width of braincase, 10; length of nasals, 9.6; length of upper molar series, 3.4; length of mandible, 12.2; length of lower molar series, 3.4.

Zapus luteus australis Bailey.

Zapus luteus australis Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 132.

Type locality. Socorro, New Mexico.

Genl. Chqr. Smaller and darker than *Z. luteus;* skull narrower.

Color. Upperparts pale buffy yellow, lined with black hairs, black somewhat darker; dorsal area indistinctly marked; underparts pure white; hands and feet white; heels dusky; tail brown above, white beneath. Ex type in United States National Museum.

Measurements. Total length, 205; tail, 124; hind foot, 29.5. Skull: Occipito-nasal length, 21.8; Hensel, 16.5; zygomatic width, 10.7; intertemporal width, 4.2; length of nasals, 8; palatal length, 3.3; length of upper molar series, 3.2; length of mandible, 10.8; length of lower molar series, 3.4. Ex type in United States National Museum.

Family **Octodontidæ.**

Subfamily **Loncherinæ.**

Genus Loncheres (101).

Loncheres armatus (I. Geoffroy).

Nelomys armatus I. Geoffroy, Ann. Sci. Nat., X, Ser. 2, 1838, p. 125.

Type locality. Cayenne, French Guiana.

Geogr. Distr. French Guiana; Island of Martinique, Lesser Antilles. Type in Paris Museum.

Genus Proechimys (102).

Proechimys rubellus Hollister.

Proechimys rubellus Hollister, Proc. Biol. Soc. Wash., XXVII, 1914, p. 57.

Type locality. Angostura Valley, Costa Rica.

Genl. Char. Similar to *P. centralis* but more red, and less grayish and yellowish buff. Tail shorter.

Color. Head and upperparts mixed black and orange (black most prominent at back of head), giving all these parts a reddish appearance; outer side of fore legs, and from knee to foot on hind legs creamy white; flanks like upperparts; entire underparts and inner side of legs creamy white; hands and feet whitish; tail at base hairy, colored like back, remainder bare, black above, paler below. Ex type in United States National Museum.

Measurements. Total length, 380; tail, 130; hind foot, 55 (skin). Skull: Total length, 647; Hensel, 43.9; zygomatic width (broken); intertemporal width, (broken); length of nasals, 23.9; length of upper molar series, 9.3; length of mandible, 26; length of lower molar series, 9.6. Ex type in United States National Museum.

Genus Hoplomys.

Hoplomys Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 649. Type *Hoplomys truei* Allen.

Hoplomys truei Allen.

Hoplomys truei Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 650.

Type locality. Lavala, Matagalpa, Mexico.

Color. Upperparts and head pale rusty brown, the spines black; flanks grayish brown; outer side of limbs dusky grayish brown; hands and feet whitish; entire underparts and inner side of limbs pure white; tail naked, dark grayish brown above, whitish beneath; ears black. Ex type in American Museum of Natural History.

Measurements. Total length, 550; tail, 170; hind foot, 53. Skull: Occipito-nasal length, 55; zygomatic width, 27; length of nasals, 20; length of upper molar series, 9.4; length of mandible, 25.8. Ex type in American Museum of Natural History.

Hoplomys goethalsi Goldman.

Hoplomys goethalsi Goldm., Smith. Misc. Coll., LVI, No. 36, 1912, p. 10.

Type locality. Rio Indio, near Gatun, Canal Zone, Panama.

Genl. Char. Similar to *H. truei*, but cranial characters different; zygomata heavier, jugal broader, the inferior border produced anteriorly, nearly to antorbital foramen, and prolonged posteriorly into a hook.

Color. Top of head and median line of neck covered with dark colored bristles, and from shoulders to rump by black-tipped spines overlaying the general cinnamon-rufous color of the upperparts; cheeks suffused with cinnamon-rufous; outer side of arms grayish brown; outer side of legs blackish; underparts white; pectoral band sometimes present; inner side of metatarsus and three inner toes whitish; outer side and two outer toes brownish; tail above blackish, beneath whitish. Ex type in United States National Museum.

Measurements. Total length, 391; tail, 153; hind foot, 54. Skull: Occipito-nasal length, 55; Hensel, 40.4; zygomatic width, 29.2; intertemporal width, 13; length of nasals, 16.4; palatal length, 11.8; length of upper molar series, 9.3; length of mandible, 29.1; lower molar series, 10.2. Ex type in United States National Museum.

Genus Isothrix.

Isothrix Wagner, Arch. für Naturgesc., 1845, Bd. I, p. 145. Type *Isothrix bistriata* Wagner.

Isothrix darlingi Goldman.

Isothrix darlingi Goldm., Smith Misc. Coll., LX, 1912, No. 2, p. 12.

Type locality. Marraganti (near Real de Santa Maria), Rio Tuyra, eastern Panama.

Color. Lips and muzzle mouse-gray; white line at base of whiskers; nose and head on top to ears blackish; cheeks grayish brown, white spot below eye; rest of upperparts ochraceous-buff and black underparts pale ochraceous-buff; limbs like upperparts; wrists, ankles and feet grayish; tail blackish brown all around, covered with short, upright whitish hairs. Ex type in United States National Museum.

Measurements. Total length, 472; tail, 240; hind foot, 44. Skull: Greatest length, 52.6; Hensel, 40.3; zygomatic width, 24.5; intertemporal width, 13.4; length of nasals, 13.5; length of upper molar series, 6.9; length of mandible, 27.6; length of lower molar series, 11.3. Ex type in United States National Museum.

Subfamily **Capromyinæ.**

Genus Capromys (103).

Capromys pilorides relictus G. M. Allen.

Capromys pilorides relictus G. M. Allen, Bull. Mus. Comp. Zool., LIV, 1911, p. 207.

Type locality. Casas Mountains, Nueva Gerona, Isle of Pines, Cuba.

Family **Agoutidæ.**

Genus Dasyprocta (107).

Dasyprocta punctata dariensis Goldman.

Dasyprocta punctata dariensis Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 11.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama. Altitude 5200 feet.

Genl. Char. Similar to *D. punctata isthmica*, but larger and darker.

Color. Top of head, nape and shoulders mixed black and ochraceous; hairs of back dusky, broadly tipped with orange-buff, no annulations; hairs of rump dusky, with Naples-yellow tips; lips, chin, median line of abdomen and inguinal region whitish; rest of underparts mixed black and buff; feet black. Ex type in United States National Museum.

Measurements. Total length, 610; tail, 25; hind foot, 133. Skull: Occipito-nasal length, 111.5; Hensel, 84.4; zygomatic width, 51.1; intertemporal width, 35.4; length of nasals, 42.3; length of upper molar series, 20.5; length of mandible, 55.1; length of lower molar series, 22.2. Ex type in United States National Museum.

Dasyprocta punctata yucatanica Goldman.

Dasyprocta punctata yucatanica Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 12.

Type locality. Apazote, Campeche, Mexico.

Genl. Char. Similar to *D. punctata* but paler and grayer.

Color. Top of head mixed rufous and black; upperparts mixed black and pale tawny ochraceous; hairs annulated; chin, lips, inner side of limbs, median line of abdomen and inguinal region pale buffy tinged with yellow; sides of neck and abdomen, and chest like back but paler, more gray; feet blackish with numerous hairs ringed with buff. Ex type in United States National Museum.

Measurements. Total length, 522; tail, 35; hind foot, 120. Skull: Occipito-nasal length, 108; Hensel, 83; zygomatic width, 49.8; intertemporal width, 30.5; length of nasals, 44.5; length of upper molar series, 19; length of mandible, 55.3; length of lower molar series, 20. Ex type in United States National Museum.

Dasyprocta punctata chiapensis Goldman.

Dasyprocta punctata chiapensis Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 13.

Type locality. Huehuetán, southern Chiapas, Mexico.

Geogr. Distr. Southern part of the state of Chiapas from sea-level to 3500 feet altitude, and probably adjacent parts of Guatemala.

Genl. Char. Similar to *D. punctata* in size and general appearance, but cranial characters different. Premaxillæ broader posteriorly; sphenopalatine vacuities larger; audital bullæ smaller.

Color. Very similar to *D. punctata*. Upperparts mixed black and tawny ochraceous, hairs annulated; underparts similar but paler; chin, axillæ, inner side of hind legs and middle of abdomen pale orange-buff; feet blackish. Ex type in United States National Museum.

Measurements. Total length, 492; tail, 30; hind foot, 120. Skull: Occipito-nasal length, 102.8; Hensel, 76; zygomatic width, 48.2; intertemporal width, 28.5; palatal length, 52; length of nasals, 38.5; length of upper molar series, 19.5; length of mandible, 49.6; length of lower molar series, 20.6. Ex type in United States National Museum.

Genus Cuniculus.

Cuniculus Brisson, Regnum Anim., 1762, p. 98. Type [*Cuniculus*] *paca* Brisson.

Mr. Hollister in the Proceedings of the Biological Society of Washington, Vol. XXVI, 1913, p. 79, calls attention to this genus and claims that the type could not be fixed by elimination, as was done by Dr. C. H. Merriam, who made *Cuniculus alactaga* (Olivier) 1800, the type, because *Cuniculus cauda longissima* Brisson which = *C. alactaga* (Olivier) was placed in brackets as doubtfully referred to the genus, and according to Article 30 of the International Code this makes it not permissable, and therefore the type must be chosen by selection. He therefore makes [*Cuniculus*] *paca* Brisson the type and accordingly *Cuniculus* supercedes *Agouti* Lacépède, 1799.

Cuniculus paca nelsoni (Goldman).

Agouti paca nelsoni Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 9.

Type locality. Catemaco, southern Vera Cruz.

Geogr. Distr. Coastal plains and mountain slopes from the vicinity of Jalapa, State of Vera Cruz, eastward and southward through States of Tabasco, Chiapas, and the Peninsula of Yucatan to eastern Guatemala, and western Honduras.

Genl. Char. Similar to *A. p. virgata* but more rusty in color; no dark stripe on flank below the white one.

Color. Upperparts dark cinnamon-rufous, with narrow white

stripes on flanks; rows of white spots on sides of neck, becoming stripes on shoulders extending to hips and breaking again into spots on sides of rump; on flanks are two stripes, a dark and white one, and above the former a row of white spots go from neck to rump; a shorter row of similar spots extends along lower part of back; an indistinct dark line extends below the lower white lateral line, and an indistinct white line goes from the thighs to underparts; underparts and inner side of limbs white; cheeks grayish brown; outer side of fore limbs pale fawn; outer side of hind limbs dark cinnamon-rufous. Ex type in United States National Museum.

Measurements. Total length, 794; tail, 29; hind foot, 127. Skull: Occipito-nasal length, 147.5; Hensel, 127.5; zygomatic width, 111.7; intertemporal width, 43.3; length of nasals, 55.7; palatal length, 93.7; length of upper molar series, 30; length of mandible, 79.5; length of lower molar series, 29.6. Ex type in United States National Museum.

Genus Hydrochœrus.

Hydrochœrus Brisson, Regnum Anim., 1762, p. 80. Type *Sus hydrochœris* Linn.

Hydrochœrus isthmius Goldman.

Hydrochœrus isthmius Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 11.

Type locality. Marraganti, near the head of tide-water on the Rio Tuyra, eastern Panama.

Genl. Char. Similar to *H. hydrochœris* but smaller; cranial characters different; dentition lighter.

Color. General color on upper and underparts deep rusty reddish, the color darker on upperparts, the hairs on underparts being scanty, not covering all the skin; middle of face, cheeks, lower part of rump and outer side of hind legs inclining to blackish; orbital rings buffy; ears and feet brownish black, nearly bare of hairs. Ex type in United States National Museum.

Measurements. Total length, 1025; hind foot, 200. Skull: Greatest length, 200; occipito-nasal length, 174; zygomatic width, 116.5; interorbital width, 52.5; length of nasals, median, 67.6; palatal length, 122; length of tooth row, 64.2; length of mandible, 157; length of lower tooth row, 61. Ex type in United States National Museum.

Order [1] Lagomorpha.

Family Ochotonidæ. Pikas.

Genus Ochotona (109).

Ochotona albatus Grinnell.

Ochotona albatus Grinnell, Univ. Calif. Publ. Zool., X, 1912, p. 125.

Type locality. Near Cottonwood Lakes, Sierra Nevada Mountains, Inyo County, California. Altitude 11000 feet.

Ochotona fenisex Osgood.

Lagomys minimus Lord, Proc. Zool. Soc. Lond., 1863, p. 98.

Ochotona minimus Elliot, Syn. N. Am. Mamm., F. C. M. Pub. II, 1901, p. 269. Zool. Ser.

According to Mr. W. H. Osgood, Proc. Biol. Soc. Wash., XXVI, 1913, p. 80, the term *minima*, bestowed by Lord (*l. c.*) on this species is preoccupied by *Lagomys minimus* Schinz, Das Thierreich, I, 1821, p. 320, and he proposes in its place *Ochotona fenisex*, by which name the species will be hereafter known.

Ochotona nigrescens Bailey.

Ochotona nigrescens Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 133.

Type locality. Jemez Mountains, New Mexico. Altitude 10000 feet.

Genl. Char. Colors very dark.

Color. Upperparts cinnamon-brown, the hairs tipped with black: throat and median part of belly cinnamon-brown; rest of underparts pale buff; plumbeous under-fur showing; feet above whitish; soles of hind feet blackish, outer surface of ear black, inner surface dark gray with black band near tip. Ex type in United States National Museum.

Measurements. Total length, 200; hind foot, 30. Skull, broken: Zygomatic width, 21; intertemporal width, 5.3; length of nasals, 38; length of upper molar series, 8; length of mandible, 22; length of lower molar series, 7.8. Ex type in United States National Museum.

[1] See Lyon, Smith. Misc. Coll., 1912, p. 321.

Ochotona figginsi Allen.

Ochotona figginsi Allen, Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 103.

Type locality. Pagoda Peak, Routt County, Colorado.

Color. Head and entire upperparts light buff, hairs tipped with black; shoulders and flanks warm buff; underparts buffy white, except on chest which is buff; fore feet whitish, hind feet buff. Ex type in American Museum of Natural History.

Measurements. Total length, 196; hind foot, 26 (skin). Skull: Occipital region broken away; zygomatic width, 20.8; intertemporal width, 5; length of nasals, 14.3; length of upper molar series, 8.2; length of mandible, 28.3; length of lower molar series, 7.9. Ex type in American Museum of Natural History.

Ochotona cinnamomea Allen.

Ochotona cinnamomea Allen, Mus. Brooklyn Inst. Arts and Sci., Sci. Bull., I, 1905, p. 121.

Type locality. Briggs Meadows, Beaver Range, Beaver County, Utah, Altitude, 11000 feet. Type in American Museum of Natural History.

Ochotona levis Hollister.

Ochotona levis Hollister, Proc. Biol. Soc. Wash., XXV, 1912, p. 57.

Type locality. Chief Mountain Lake, Montana.

Genl. Char. Size small; skull small; color similar to *O. princeps.*

Color. Head and upperparts pale buffy brown; nape palest; cheeks and sides of head rufous; behind ears pale buff; flanks brownish buff; underparts cream-buff, washed on breast with rufous; fore feet cream-buff; hind feet buff. Ex type in United States National Museum.

Measurements. Total length, 178; tail, 10; hind foot, to end of claw, 26.4. Skull: Total length, 41.7; Hensel, 31.6; zygomatic width, 20.5; intertemporal width, 5.5; length of nasals, 13.6; length of upper molar series, 6.8; length of mandible, 27.2; length of lower molar series, 6.9. Ex type in United States National Museum.

Ochotona taylori Grinnell.

Ochotona taylori Grinnell, Proc. Biol. Soc. Wash., XXV, 1912, p. 129.

Type locality. Warren Peak, Warner Mountains, Modoc County, California. Altitude 9000 feet.

Ochotona uinta Hollister.

Ochotona uinta Hollister, Proc. Biol. Soc. Wash., XXV, 1912, p. 58.

Type locality. Uintah Mountains, Utah.

Genl. Char. Upperparts uniformly colored, no gray.

Color. Entire upperparts clay-color, finely lined with brown; head darkest, underparts cream-buff; hands and feet yellowish buff; ears dark brown, edged with buff; buff-colored tuft of hairs inside. Type in United States National Museum.

Measurements. Total length, 202; hind foot, 26.6 (skin). No skull.

Family **Leporidæ. Hares, Rabbits.**

Genus Romerolagus (110).

Romerolagus diazi (Ferrari-Perez).

Lepus diazi Ferrari-Perez, Cat. Comis. Geogr. Explor. Repub. Mexicana, 1893, pl. 42; Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 228.

Romerolagus nelsoni Merr., Proc. Biol. Soc. Wash., X, 1896, p. 173; Elliot, Mamm. Middle Amer. and W. Indies, IV, Pt. I, F. C. M. Pub. 1904, p. 412; *Id.*, Check-List Mamm. N. Amer. Cont. and West Indies, 1905, p. 339.

Type locality. Puebla, Mt. Iztaccihuatl, Mexico.

Geogr. Distr. Mt. Popocatapetl and Mt. Iztaccihuatl, State of Mexico.

Measurements. Total length, 311; hind foot, 48.6. Skull: Greatest length, 60.4; zygomatic breadth, 29; intertemporal width, 9.8; length of nasals, 24.4; palatal length, 7.4; length of upper toothrow, 11.6; length of mandible, 38.1; length of lower toothrow, 12.1. Ex type of *R. nelsoni* in the United States National Museum.

The name of this rabbit was for a long time a moot question, whether it should be the one here given or that of *nelsoni* conferred on it by Merriam. The difficulty has been solved by Mr. Miller (*l. c.*).

Genus [1] Sylvilagus.

Subgenus B. **Sylvilagus.**

Sylvilagus floridanus hitchensi Mearns.

Sylvilagus floridanus hitchensi Mearns, Proc. U. S. Nat. Mus., XXXIX, 1911, p. 227.

Type locality. Smith's Island, Northampton County, Virginia.

[1] Employed in the Check-List as a subgenus.

Genl. Char. Similar to *L. f. malhurus*, but paler; skull larger, rostrum thicker; bullæ larger.

Color. Upperparts pale sandy fulvous; underparts white; back of hind legs dark chestnut; front white; ears dark brown. Ex type in United States National Museum.

Measurements. Total length, 477; tail, 70; hind foot, 97; ear from crown, 72. Skull: Occipito-nasal length, 76.8; Hensel, 57.2; zygomatic width, 37.1; intertemporal width, 20.9; median length of nasals, 2.62; length of upper molar series, 14.4; length of mandible, 53.3; length of lower molar series, 14.5. Ex type in United States National Museum.

Sylvilagus floridanus similis Nelson.

Sylvilagus floridanus similis Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 82.

Type locality. Valentine, Nebraska.

Geogr. Distr. Dry plains (mainly along wooded streams) of extreme western Minnesota, eastern North and South Dakota, all of Nebraska (except possibly the Missouri bottomlands), northern Kansas, northeastern Colorado, along tributaries of Platte River to base of mountains near Denver and southeastern Wyoming. Vertical range from about 1500 feet in northeastern Nebraska to over 5000 feet west of Denver, Colorado. Zonal range, mainly upper Sonoran.

Genl. Char. Size small; color pale; ears short; skull small.

Color. Top of head pale pinkish buff; sides of head grayish, tinged with black; back pale pinkish buff mixed with black; shoulders washed with gray; patch on rump iron gray; nape pale rusty rufous; front and outer side of forelegs pale rusty rufous; outer side of hind legs dull cinnamon, outer side of hind feet paler; top of forefeet pale pinkish buff, of hind feet white; tail above dusky gray; underside of neck pinkish buff, rest of underparts white with a pale buff band on lower part of flanks; ears on outer side grizzled gray bordered with black on front and at tip, inside grayish white. Ex type in United States National Museum.

Measurements. Total length, average 5, 408; tail, 52; hind foot, 99; ear, 50. Skull: Occipito-nasal length, 70; Hensel, 53.2; zygomatic width, 35.6; intertemporal width, 11.5; length of nasals, 26.8; palatal length, 8.2; length of upper molar series, 13.5; length of mandible, 37.1; length of lower molar series, 14.1. Ex type in United States National Museum.

Sylvilagus floridanus restrictus Nelson.

Sylvilagus floridanus restrictus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 82.

Type locality. Zapotlan, Jalisco, Mexico.

Geogr. Distr. Mainly oak and pine forested slopes of Sierra Madre in Michoacan, southern and western Jalisco, and southeastern part of Territory of Tepic, Mexico. Vertical range from about 4000 to 5000 feet in Michoacan. Zonal range mainly upper Sonoran and transition, but ranging down on south slope of Sierra Madre through lower Sonoran to border of arid tropical zone.

Genl. Char. Similar to *S. f. subcinctus* but more reddish; skull with heavier rostrum and narrower intertemporal area.

Color. Top of head and upperparts of body ochraceous-buff, washed with black; nape deep rusty buff; neck on under side dark cream-buff; forelegs cinnamon-rufous; top of forefeet ochraceous-buff; back of hind legs dark cinnamon-rufous; top of hind feet ochraceous-buff; tail above ochraceous; ears ochraceous-brown, bordered anteriorly and at tip with black; underparts of body white. Ex type in United States National Museum.

Measurements. Total length, 425; tail, 55; hind foot, 94; ear, 58. Skull: Occipito-nasal length, 74.5; Hensel, 56; zygomatic width, 37.3; intertemporal width, 13.8; palatal length, 7.3; length of nasals, 25.2; length of upper molar series, 13.6; length of lower molar series, 14.2. Ex type in United States National Museum.

Sylvilagus gabbi messorius Goldman.

Sylvilagus gabbi messorius Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 13.

Type locality. Cana, eastern Panama. Altitude 1800 feet.

Genl. Char. Similar to *S. gabbi*, but more heavily overlaid with black.

Color. Top of head and upperparts rusty heavily mixed with black, which is almost the dominant color; nape ochraceous-buff; flanks and outer side of thighs cream color, less black appearing; cheeks buff and black; under side of neck buff; rest of underparts white; outer side of fore legs and feet ochraceous-buff; hind feet on upper side chamois-buff; tail above ochraceous-buff, beneath white; ears brownish black on outer side of anterior border. Ex type in United States National Museum.

Measurements. Total length, 370; tail, 17; hind foot, 80. Skull: Total length, 73; Hensel, 55.3; zygomatic width, 36.7; intertemporal width, 12.5; palatal length, 31.2; length of nasals, 29.2; length of upper molar series, 13.6; length of mandible, 51.6; length of lower molar series, 13.6. Ex type in United States National Museum.

Sylvilagus cunicularius (Waterhouse).

Lepus cunicularius Waterh., Nat. Hist. Mamm., II, 1848, p. 132; Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 51.

Lepus veræ-crucis Thos., Proc. Zool. Soc. Lond., 1890, p. 74, pl. vi; Elliot, Mamm. Middle Amer. and W. Indies, F. C. M. Pub., IV, Pt. 1, 1904, p. 420, Zool. Ser.; *Id.* Check-List Mamm. N. Amer. Cont. and W. Indies, 1905, p. 347.

Type locality. Sacualpan, State of Vera Cruz, Mexico.

From an examination of Waterhouse's type in the Berlin Museum, Mr. Osgood (*l. c.*) decided that the example could not be separated from *Lepus veræ-crucis* Thomas, and therefore this name must become a synonym, and the species be known as *Sylvilagus cunicularius* (Waterhouse).

Sylvilagus cognatus Nelson.

Sylvilagus cognatus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 82.

Type locality. Near summit of the Manzano Mountains, Valencia County, New Mexico.

Geogr. Distr. High mountain summits and adjacent slopes of central-eastern New Mexico. Vertical range from about 6500 to 10,200 feet altitude on Manzano Mountains, zone range mainly transition, and lower part of Canadian zone.

Genl. Char. Color pale; skull small with slender supra-orbital and smaller bullæ.

Color. Top of head and upperparts buffy gray tinged with black; rump iron-gray; head about eyes rusty buff; sides of head iron-gray tinged with buff, as are also the flanks; nape rusty rufous; sides of neck and shoulders rusty buff washed with buff-gray; front and sides of legs pale rusty; top of fore feet whitish; back and outer side of hind legs pale rusty cinnamon, tips of hairs gray; hind feet on top, white; neck beneath pale buffy gray, base of fur plumbeous; under parts of body white; outer side of ears buff-gray, front edge of terminal third blackish; tail buff-brown and washed with gray. Ex type in United States National Museum.

Measurements. Total length, 390; hind foot, 100; ear, 68. Skull: Occipito-nasal length, 71.7; Hensel, 55.4; zygomatic width, 36.5; intertemporal width, 13.8; median length of nasals, 20.9; palatal length, 5.8; length of upper molar series, 13.4; length of mandible, 34; length of lower molar series, 12.3. Ex type in United States National Museum.

Sylvilagus auduboni vallicola Nelson.

Sylvilagus auduboni vallicola Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 82.

Type locality. San Emigdio Ranch, Kern County, California.

Geogr. Distr. Hot, arid plains of central-interior California in Salinas, upper Cuyama, and San Joaquin Valleys, north to beyond Raymond and south to Walker and Tejon Passes. Not found west of the outer Coast Range. Vertical range from about 250 feet in bottom of San Joaquin Valley to 4500 feet altitude on western slope of Sierra Nevada. Zonal range mainly lower Sonoran, but extending into upper Sonoran.

Genl. Char. Size as *S. auduboni;* ears larger, colors paler; head pale ochraceous; flanks paler than back; rump grayish; nape pale ochraceous-buff; front and sides of fore legs ochraceous-buff; top of fore feet buffy white; back and side of hind legs buff-cinnamon; neck beneath pale buff; rest of underparts white; tail above pale grayish buff; outer side of ears buffy gray, margined with black at tip. Ex type in United States National Museum.

Measurements. Total length, 375; tail, 73; hind foot, 88; ear, 68. Skull: Occipito-nasal length, 67.8; Hensel, 52.9; zygomatic width, 34.1; intertemporal width, 12.4; length of nasals, 22.5; palatal length, 4.9; length of upper molar series, 12.8; length of mandible, 45.2; length of lower molar series, 12.5. Ex type in United States National Museum.

Sylvilagus auduboni cedrophilus Nelson.

Sylvilagus auduboni cedrophilus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 83.

Type locality. Cactus Flat, 20 miles north of Cliff, Grant County, New Mexico.

Geogr. Distr. Mainly the juniper and piñon pine belt, north through mountains of southern half of New Mexico and along the mogollon Range to east side of San Francisco Mountain of east-central Arizona. Vertical range from about 5000 to 8000 feet in western New Mexico. Zonal range mainly upper Sonoran.

Genl. Char. Similar to *S. a. minor* but larger and darker in color. Skull: larger than *S. a. minor* but bullæ smaller.

Color. Top of head and upperparts dark buff washed with black; flanks pale buff, no black; rump-patch iron-gray; nape dark rusty rufous; front and sides of fore legs dark rusty rufous; back and sides of lower portion of hind legs rusty cinnamon; top of hind feet white; neck beneath dark buff; rest of underparts white; outer side of ears grayish buff, bordered at tip with black; tail above grayish brown. Ex type in United States National Museum.

Measurements. Total length, 385; tail, 35; hind foot, 92. Skull: Occipito-nasal length, 66.8; Hensel, 50.8; zygomatic width, 34.3; intertemporal width, 10; length of nasals, 26.6; palatal length, 5.4;

length of upper molar series, 11.9; length of mandible, 32.2; length of lower molar series, 12.5. Ex type in American Museum of Natural History.

This race appears to grade on all sides into such forms as *S. a. minor* and *S. a. arizonæ*, so that it is difficult to characterize some examples, but as a rule the specimens are more strongly buff on back and lower neck.

Sylvilagus auduboni warreni Nelson.

Sylvilagus auduboni warreni Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 83.

Type locality. Coventry, Montrose County, Colorado.

Geogr. Distr. Southwestern Colorado, southeastern Utah, northwestern New Mexico, northeastern Arizona, including lower half of the valley of the Little Colorado River, to east base of San Francisco Mountain, and to Henry Mountains, southeastern Utah. Vertical range from about 5000 to 8500 feet in northwestern New Mexico. Zonal range mainly upper Sonoran, extending into transition and lower Sonoran zones.

Genl. Char. Like *S. a. baileyi* but darker in color. Typical specimens are distinguishable from the species compared, but those exhibiting the various gradations towards other forms are not so readily recognized.

Color. Top of head and upperparts cream-buff, the back washed with black; nape pale rusty rufous; rump iron-gray; front and outer side of fore legs rusty ochraceous-rufous; top of fore feet white; back and outer side of hind legs cinnamon; top of hind feet wide; lower border of flanks buff; neck beneath dark buff; underparts of body white; inguinal portion dark buff; tail above iron-gray; outer side of ears grayish washed with black. Ex type in United States National Museum.

Measurements. Total length, 375; tail, 51; hind foot, 102. Skull: Occipito-nasal length, 68.5; Hensel, 52; zygomatic width, 34.8; intertemporal width, 12.5; length of nasals, 21.3; palatal length, 7.8; length of upper molar series, 12; length of lower molar series, 12. Ex type in United States National Museum.

This form, like *S. a. cedrophilus*, is recognizable in the typical style, but difficult to recognize in its various gradations.

Sylvilagus auduboni neomexicanus Nelson.

Sylvilagus auduboni neomexicanus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 83.

Type locality. Fort Sumner, Guadalupe County, New Mexico.

Geogr. Distr. Pecos Valley from near Fort Stockton, Texas, north to about Fort Sumner, New Mexico, and thence east to Abilene and Wichita Falls, Texas, and north through eastern New Mexico, western Texas and western Oklahoma to extreme south-central Kansas. Vertical range from about 2500 feet in western Texas to 5000 feet in eastern New Mexico. Zonal range lower Sonoran and lower part of upper Sonoran zone.

Genl. Char. Like *S. a. minor* but ears shorter and hind foot longer. Skull has longer nasals, smaller bullæ, intertemporal width greater and a more flattened frontal area.

Color. Top of head and back dark buff-gray tinged with rusty buff; flanks similar to back, but more gray; shoulders deep rusty buff; nape rufous; outer side of fore legs bright rusty rufous; top of fore feet dark buff; outer side of hind legs rusty cinnamon; under side of neck dark rusty buff; underparts of body white; outer side of ears pale grayish buff; tail above buff-gray. Ex type in United States National Museum.

Measurements. Total length, 385; tail, 59; hind foot, 91. Skull: Occipito-nasal length, 63.4; Hensel, 48.9; zygomatic width, 33.8; intertemporal width, 11.2; length of nasals, 20; palatal length, 6; length of upper molar series, 12.1; length of mandible, 44.7; length of lower molar series, 12.7. Ex type in United States National Musem.

As Mr. Nelson says "this is not a strongly marked form," but it is separated as a race on account of the legs and shoulders being more rusty reddish, the rusty buff tinge on rest of the body, and small ears.

Sylvilagus robustus (Bailey).

Lepus pinetus robustus Bailey, N. Am. Fauna, No. 25, 1905, p. 159. Davis Mountain Cottontail.

Type locality. Davis Mountain, 6000 feet altitude, Texas.

Geogr. Distr. Davis and Chisos Mountains, 6000 to 8000 feet altitude. Zonal range Transition.

Genl. Char. Similar to *L. p. holzneri* but larger; braincase narrower; postorbital processes wider; bullæ larger.

Color. Winter Pelage. Crown and rump brownish gray; back mixed buff and black; sides light ashy gray; nape bright fawn; throat-patch buffy; lower parts white; outer side of limbs pale rusty rufous. Ex type in United States National Museum.

Measurements. Total length, 460; tail vertebræ, 55; hind foot, 104; ear from notch, 67. Skull: Basal length, 60; length of nasals, 32; zygomatic breadth, 34; width of braincase, 26.5; intertemporal width, 13; mastoid width, 25.5; length of upper molar series, 12.7;

length of mandible, 40; length of lower molar series, 11. Ex type in United States National Museum.

Subgenus D. **Tapeti.**

Sylvilagus aquaticus littoralis Nelson.

Sylvilagus aquaticus littoralis Nels., N. Amer. Fauna, No. 29, 1909, p. 273.

Type locality. Houma, Terrebonne Parish, Louisiana.

Geogr. Distr. A narrow belt of swamps and marshes along the Gulf coast, nearly if not entirely within the upper limits of tidewater, from Bay St. Louis, Mississippi, west through Louisiana to Matagorda Bay, Texas. Vertical range below 50 feet altitude, wholly within the lower austral zone.

Color. Top of head ferrugineous; nape dark rufous; upperparts mixed black and cinnamon-buff; becoming deeper buff on the rump; flanks paler buff, no black; top of fore legs rusty buff; underparts dull grayish brown; top of hind legs pale rusty; lower back beneath a patch of dark buff; rest of underparts white; tail above mixed black and rusty, beneath white; ears brown. Ex type in United States National Museum.

Measurements. Skull: Total length, 85.6; Hensel, 68.3; zygomatic width, 40.4; intertemporal width, 18.3; length of nasals, 29.3; length of upper molar series, 15.7; length of mandible, 40.7; length of lower molar series, 15.4. Ex type in United States National Museum.

Subgenus E. **Microlagus.**

Sylvilagus bachmani exiguus Nelson.

Sylvilagus bachmani exiguus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 84.

Type locality. Yubay, central Lower California, Mexico.

Geogr. Distr. Arid middle part of peninsula of Lower California from Alamo Plain and Trinidad Valley south to Comondu. Vertical range, from sea-level at San Quentin to about 7000 feet on San Pedro Martir Mountains. Zonal range mainly upper and lower Sonoran extending into Transition on mountains.

Genl. Char. Similar to *S. b. cinerascens,* but ears longer and bullæ larger.

Color. Top of head and back pinkish buff lined with black, the tips of the hairs being of that color; flanks and rump gray; outer

side of fore legs fawn color; nape pale ochraceous; fore feet whitish; outer side of hind legs similar in color to the back; hind feet white; neck beneath pale gray; underparts of body white, base of fur plumbeous; tail above gray, beneath white; ears gray. Ex type in United States National Museum.

Measurements. Total length, 315; tail, 32; hind foot, 68; ear, 63. Skull: Occipito-nasal length, 60.5; Hensel, 47.5; zygomatic width, 28.3; intertemporal width, 9.6; length of nasals, 9.4; palatal length, 4.2; length of upper molar series, 10.5; length of lower molar series, 10.9. Ex type in United States National Museum.

The size of the ears and bullæ serve to distinguish this form when compared with those of *S. b. cinerascens*.

Sylvilagus mansuetus Nelson.

Sylvilagus mansuetus Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 83.

Type locality. San José Island, Gulf of California.

Geogr. Distr. San José Island, Gulf of California, Mexico. Vertical range from sea-level up to an undetermined altitude on low mountains. Zonal range lower Sonoran and upper border of arid tropical zone.

Genl. Char. Colors very pale; ears long. Skull long and narrow; nasals very long; intertemporal width great; bullæ large.

Color. Top of head and back yellowish gray; tips of hairs black; nape pale ochraceous-buff; flanks paler and more gray; outer side of fore legs ochraceous-clay color; fore legs white; back of hind legs brownish; hind feet pure white; under side of neck pale gray; rest of underparts of body white; outer side of ears gray; tail above mixed black and buff. Ex type in United States National Museum.

Measurements. Total length, 339; tail, 44; hind foot, 73; ear, 63. Skull: Occipito-nasal length, 64.1; Hensel, 49.5; zygomatic width, 31.2; intertemporal width, 11.3; length of nasals, 18.9; palatal length, 5.2; length of upper molar series, 10.6; length of mandible, 28.5; length of lower molar series, 11.5. Ex type in United States National Museum.

The unique type of this rabbit is assuming a winter pelage, and it is not improbable that its paler appearance may be attributed, in a considerable degree, to this fact.

Genus Lepus (111).

Subgenus F. Macrotolagus.

Lepus alleni tiburonensis Townsend.

Lepus alleni tiburonensis Town., Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 120.

Type locality. Tiburon Island, Gulf of California, Mexico.

Genl. Char. Similar to *L. alleni* but more of an iron-gray on flanks and thighs; back thickly mingled with black.

Color. Top of head to between eyes dark brown mixed with pale buff, nose paler; back to rump mixed black and buff, first color predominating; flanks to middle of belly and outer side of legs iron-gray, palest on belly; line on inner side of legs and on middle of belly white; black line from tail over center of rump to tail; tail iron-gray with black in center above, grayish beneath; feet whitish, soles pale cinnamon; ears nearly naked, dark brown, outer buffy edge-white. Ex type in United States National Museum.

Measurements. Total length, 610; hind foot, 127; ear, 132. Skull: Total length, 104.8; Occipito-nasal length, 101.7; Hensel, 82; zygomatic width, 47.9; intertemporal width, 29.5; length of nasals, medium, 32.5; length of palate, arch to incisive foramina, 94; length of upper molar series, 16.2; length of mandible, 70; length of lower molar series, 17.7. Ex type in United States National Museum.

Lepus californicus magdalenæ Nelson.

Lepus californicus magdalenæ Nelson, Proc. Biol. Soc. Wash., XX, 1907, p. 81.

Type locality. Magdalena Island, Lower California, Mexico.

Geogr. Distr. Magdalena and Margarita Islands, near southern end of Lower California, Mexico. Vertical range from sea-level to about 1000 feet altitude. Zonal range Lower Sonoran.

Genl. Char. Similar to *L. c. xanti* but paler; ears shorter. Skull: Size small; interorbital area narrower; rostrum more slender, and bullæ larger than those of species compared.

Color. Top of head, upperparts and sides of body pale pinkish buff washed with black except on flanks, where it is hardly traceable; sides of nose and about eyes dull gray; sides of head buff-gray; under side of head white; neck beneath and underparts of body dull salmon-buff; fore legs in front and fore feet on top pinkish buff, lined with blackish; back and sides of hind legs paler, a clearer buff; front of hind legs and top of hind feet paler than sides of legs; ears in front dull

gray; on back pure white with a terminal black patch; anterior border of ears gray, black at tip; posterior edge white; tail above black, beneath grayish buff. Ex type in United States National Museum.

Measurements. Total length, 550; tail, 92; hind foot, 117. Skull: Occipito-nasal length, 84.4; Hensel, 67.2; zygomatic width, 40.3; intertemporal width, 11.9; length of nasals, 29.1; palatal length, 5.8; length of upper molar series, 13.8; length of mandible, 56.8; length of lower molar series, 15.1 Ex type in United States National Museum.

Lepus californicus bennettii Gray.

Lepus bennettii Gray, Voy. Sulphur, Zool., 1844, p. 35, pl. 14.

Type locality. California. Type in British Museum.

Geogr. Distr. Southern California west of summit of Coast Range, from near Gaviota Pass to Mexican border and south along the coast to San Quentin, Lower California. Vertical range from sea-level at San Diego to about 6000 feet altitude in mountains to the eastward. Zonal range mainly Upper Sonoran.

Genl. Char. Smaller than *L. californicus* and paler. Skull not so heavy.

Color. Top of head and back pinkish buff, washed with black; nape cinnamon, some specimens grayish drab; under side of head whitish; under side of neck dark buff; sides of body like back, but less black; lower part of shoulder, inner side of thighs and abdomen light ochraceous-buff; top of fore feet buffy fawn, hairs with black tips; tail above black; beneath brownish buff.

This form has generally been considered the same as *L. californicus*, and in the Check-List was made its synonym. Mr. Nelson in his 'Rabbits of North America' has separated it from that species and given it a distinct rank.

Subgenus G. **Lepus.**

Lepus bairdi cascadensis Nelson.

Lepus bairdi cascadensis Nels., Proc. Biol. Soc. Wash., XX, 1907, p. 87.

Type locality. Roab's Ranch, near Hope, British Columbia.

Geogr. Distr. Cascade Mountains near extreme southern border of British Columbia from Hope, on Fraser River, south along east side of mountains at least to Martin and Easton, Washington. Vertical range undetermined. Zonal range mainly Canadian and Hudsonian.

Color. Upperparts dusky reddish cinnamon-brown; patch on rump large, blackish; head dark reddish cinnamon. In winter the pelage is pure white.

Order **Carnivora. Carnivores.**

Family **Felidæ. Cats.**

Genus Felis (112).

Felis arundivaga Hollister.

Felis arundivaga Hollister, Proc. Biol. Soc. Wash., XXIV, 1911, p. 176.

Type locality. Twelve miles southwest of Vidalia, Concordia Parish, Louisiana.

Genl. Char. Size large; pronounced caudal stripe; nasals very broad; sagittal crest highly developed.

Color. Black spot on each side of nose; face blackish; white streak over eye; upperparts and outer side of limbs grayish fawn; upperparts mixed with dusky; nape color indistinct, on middle of back and withers pale rufous; inner side of legs grayish; lips and throat white; chest fulvous; feet pale rufous; tail dark grayish fawn, with a dark brown stripe above for the entire length. Ex type in United States National Museum.

Measurements. Total length, 2100; tail, 735. Skull: Occipitonasal length, 193; Hensel, 174; zygomatic width, 159; intertemporal width, 37.1; medium length of nasals, 50.3; palatal length, 85.3; length of upper molar series, 46.3; length of mandible, 14.5; length of lower molar series, 45.6. Ex type in United States National Museum.

[1] **Felis improcera** Phillips.

Felis improcera Phillips, Proc. Biol. Soc. Wash., XXV, 1912, p. 85.

Type locality. Calmalli, Lower California, Mexico.

Genl. Char. Size smaller than *F. browni* Merr.; teeth larger.

Color. "Dark fawn color (Ridgway), darker along the back where it is mixed with dusky-tipped hairs. General color less reddish than *F. azteca*. Tail bicolored ending in a conspicuous black tip, the hairs of which are three centimeters long."

Measurements. Skull: "Basal length, 150; palatal length, 72; palatal length from gnathon to tip of hamalar process, 105; length of

[1] The author has not seen a specimen of this Puma. Its chief claim to a distinct form appears to be its comparatively small size, a character pertaining to most animals as they approach equatorial regions, but hardly a sufficient one for specific separation.

nasals, 55; zygomatic width, 124; least width of nasals, 14; width of anterior nares, 27; length of anterior nares, 31; length of lower tooth row from back of first molar to front of canine, 69; length of upper tooth row, 60; length of ramus of lower jaw from condyle to base of incisor, 1.125; width between postorbital processes of parietals, 68; greatest width of palate outside tooth row, 76."

Felis pirrensis Goldman.

Felis pirrensis Goldm., Smith. Misc. Coll., LXIII, 1914, p. 4.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Genl. Char. Size large, markings both stripes and spots.

Color. Upperparts, the ground color is ochraceous tawny, palest on head; sides cinnamon-buff; upperparts heavily lined and spotted with black, the black spots forming rosettes with tawny centers; the usual three black lines on hind neck; heavy black diagonal stripes on shoulders; two narrow black lines on middle of back near root of tail; outer side of limbs cinnamon-buff, spotted with black; underparts white, with a black bar across throat and another on neck; abdomen heavily spotted with black; feet buffy gray, with small, black markings; ears black, with white submarginal spots and buffy edges; tail above buff and beneath white encircled with numerous irregular broad black rings. Ex type in United States National Museum.

Measurements. Total length, 963; tail, 440; hind foot, 131.5. Skull: Total length, 99.6; Hensel, 83.8; zygomatic width, 62.8; intertemporal width, 18.5; length of nasals, 17.6; greatest breadth of nasals, 13; palatal length, 38.5; length of upper molar series, 22.7; alveolar length of upper carnassial, 11.6; length of mandible, 62; length of lower molar series, 22.4. Ex type in United States National Museum.

Felis pardalis albescens Pucheran.

Felis albescens Pucheran, Voy. de la Venus, Zool., 1855, p. 149.

Type locality. Arkansas. Type in Paris Museum.

In the Monograph of the Felidæ, I placed this form among the synonyms of *F. pardalis*, but it has lately been recognized as a subspecies. There are three mounted specimens in the Paris Museum alike neither in size nor in pattern of their markings. It is a pale style of *F. pardalis*, and if it can be shown to have a special distinction from that of the parent species, it might stand as a subspecies, as these are recognized at present. It cannot be said, however, that this has as yet been accomplished.

Family **Canidæ. Dogs, Wolves, Foxes.**

Genus Canis (114).

Canis lycaon Schreber.

Canis lycaon Schreb., Säugth., 1776; pl. lxxxix.

Type locality. Eastern Canada.

Canis tundrarum Miller.

Canis tundrarum Miller, Smith Misc. Coll., LIX, 1912, No. 15, p. 1.

Type locality. Point Barrow, Alaska.

Genl. Char. Larger than *C. lycaon;* rostrum and palate narrower than *C. nubilus.* Smaller in size than the Timber Wolf.

Color. No skin obtained; skull only.

Measurements. Skull: Total length, 254; occipito-nasal length, 217; Hensel, 221; zygomatic width, 147.9; intertemporal width, 41.7; length of nasals, 90.6; width of rostrum between premolars, second and third, 46.4; palatal length, 128.8; greatest width of palate, 63.2; length of upper molar series, 92; length of mandible, 190; length of lower molar series, 96.9. Ex type in United States National Museum.

Canis gigas (Townsend).

Lupus gigas Towns., Journ. Acad. Nat. Sci. Phila., II, 1850, p. 75.

Canis gigas Miller, Smith. Misc. Coll. LIX, 1912, p. 3.

Type locality. Near Vancouver, Clark County, Washington.

Canis jamesi Townsend.

Canis jamesi Towns., Bull. Am. Mus. Nat. Hist., XXXI, 1912, p. 130.

Type locality. Tiburon Island, Gulf of California.

Genl. Char. Colors pale, similar to *C. estor* but more buff.

Color. Entire top of nose cinnamon-rufous; top of head and cheeks ivory yellow, almost white with many black hairs intermingled, most conspicuous on top of head; nape and outer side of ears pale cinnamon; broken black line from nape to rump on middle of dorsal region; rest of upperparts whitish with black hairs intermingled throughout, occasionally forming spots or streaks; outer side of limbs buffy, growing paler on feet; sides of neck buffy; flanks and underparts whitish, tinged with buffy on middle of belly; inner side of fore legs buff; inner side of hind legs whitish; tail above at base like

back, remainder pale cinnamon. Ex type in United States National Museum.

Measurements. Total length, 1143; tail, 330; hind foot, 330; ear, 118. Skull: Occipito-nasal length, 165; Hensel, 160; zygomatic width, 92; intertemporal width, 33.5; length of nasals, 63.2; palatal length, 87.2; length of upper molar series, 69.3; length of mandible, 53.5; length of lower molar series, 72. Ex type in United States National Museum.

Canis nebrascensis texensis Bailey.

Canis nebrascensis texensis Bailey, N. Am. Fauna, No. 25, 1905, p. 175.

Texas Coyote.

Type locality. Cummings Creeks, Colorado County, Texas.

Geogr. Distr. Middle and southern Texas, eastward to Gainesville and Richmond.

Genl. Char. Similar to *C. nebrascensis*, but darker and brighter; dentition lighter.

Color. Winter Pelage. Buffy gray clouded with black; legs, ears and nose bright fulvous; throat and belly whitish; black line down front of fore leg; tail dull buffy gray, tip black. Ex type in United States National Museum.

Measurements. Total length, 1.143; tail vertebræ, 355; hind foot, 180. Skull: Basal length, 169; length of nasals, 67; zygomatic breadth, 94; mastoid width, 61; intertemporal breadth, 30; length of crown of upper carnassial, 19.8; length of upper molar series, 67.6; length of mandible, 135.6; length of lower molar series, 75.6. Ex type in United States National Museum.

Canis floridanus Miller.

Canis floridanus Miller, Proc. Biol. Soc. Wash., XXV, 1912, p. 95.

Type locality. Horse Landing, St. Johns River, Florida.

Genl. Char. Premolars larger, and carnassial less robust than in *C. lycaon;* rostral portion of skull weaker.

Color. Upperparts light buff gray clouded with black; underparts pale yellowish buff; muzzle, legs and feet ochraceous; tail buff at base, hairs on remainder absent; under fur dark brown. Ex type in United States National Museum.

Measurements. Tail, about 230; hind foot, about 189 (flat skin). Skull: Occipital region gone; Hensel, 175; zygomatic width, 122; intertemporal width, 40; length of nasals, 70.7; length of upper molar series, 72.1; length of mandible, 160; length of lower molar series, 85.2. Ex type in United States National Museum.

Genus Vulpes (115).

Vulpes macrotis devius Nelson and Goldman.

Vulpes macrotis devius Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 25.

Type locality. Llano de Yrais, opposite Magdalena Island, Lower California, Mexico.

Genl. Char. Like *V. macrotis* but sides of nose, lower jaw and sometimes chin blackish.

Color. Forehead and cheeks buffy gray; upperparts silvery gray; base of ears behind collar on neck beneath and on outer side of legs deep ochraceous-buff; sides of neck, underparts of body, flanks and under side of tail deep buff to pale ochraceous-buff; throat and median line of belly white; ears, sides of nose and tip of tail blackish. Ex type in United States National Museum.

Measurements. Total length, 785; tail, 285; hind foot, 129. Skull: Occipito-nasal length, 102.2; Hensel, 104.3; zygomatic width, 60.1; intertemporal width, 19.9; length of nasals, 38; palatal length, arch to incisors, 57.1; length of upper molar series, 42.9; length of lower molar series, 84.5. Ex type in United States National Museum.

Genus Urocyon (116).

Urocyon californicus sequoiensis Dixon.

Urocyon californicus sequoiensis Dixon, Univ. Calif. Pub. Zool., V, 1910, p. 303.

Type locality. Lagunitas, Marin County, California.

Genus Icticyon.

Icticyon Lund, Overs. Danske Vidensk. Selsk. Forhandl. Kjöbenhavn, 1842 (1843), No. 6, p. 80. Type *Icticyon venaticus* Lund.

Icticyon panamensis Goldman.

Icticyon panamensis Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 14.

Type locality. Near head of Limon River, Mount Pirri, eastern Panama.

Genl. Char. Similar to *I. venaticus*, but paler.

Color. Top of head, neck, upperparts to rump pinkish buff; rump with black and pinkish buff hairs mixed, giving this part a blackish appearance; flanks similar to upperparts, but darker by a mixture of

dusky hairs; underparts mixed dusky and pinkish buff, darker than flanks; forehead, nose, and cheeks ochraceous-buff; a few black hairs beneath eyes; chin dusky; fore legs blackish; toes and a line on under side of leg buff; hind legs black, brown toward toes; tail black all around; ears pinkish buff. Ex type in United States National Museum.

Measurements. Total length, 740; tail, 125; hind foot, 118. Skull: Greatest length, 139.6; Occipito-nasal length, 118.3; Hensel, 118.3; zygomatic width, 76.6; intertemporal width, 24.8; length of nasals, 36.1; palatal length, 61.7; length of upper molar series, 42.1; length of mandible, 95.8; length of lower molar series, 40.3. Ex type in United States National Museum.

Family **Ursidæ. Bears.**

Subfamily **Ursinæ.**

Genus Ursus (117).

Ursus sheldoni Merriam.

Ursus sheldoni Merr., Proc. Biol. Soc. Wash., XXIII, 1910, p. 127.

Type locality. Montague Island, Alaska.

Genl. Char. Similar to *U. perniger.* Skull quite different, large and massive, but short and very broad across squamosals and frontals; claws large; basi-sphenoid broad and flat, nearly equaling in length the basi-occipital, condyle of mandible exserted; lower border of mandibular ramus curving evenly to angle from coronoid; claws of grizzly type.

Color. General color brownish; head grizzled; hairs of back sometimes tipped with yellowish; belly, feet and legs blackish. Ex type in United States National Museum.

Measurements. Skull: Occipito-nasal length, 368; Hensel, 362; zygomatic width, 270; length of nasals, 113.6; palatal length, arch to incisors, 196; width of palate between last molars, 61.3; length of upper molar series, 57; length of mandible, 187; length of lower molar series, 74.2. Ex type in United States National Museum.

Ursus americanus perniger Allen.

Ursus americanus kenaiensis Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 6.

Ursus americanus perniger Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 115.

Type locality. Homer, Kenai Peninsula, Alaska.

Genl. Char. Skull as compared with the black bear from Labrador

is less broad in proportion to its length; length of tooth row is less and the teeth are smaller.

Color. Pelage intensely black. Ex type in American Museum of Natural History.

Measurements. Skull: Total length, 253; occipito-nasal length, 220; Hensel, 225; intertemporal length, 88.1; length of nasals, 66.9; length of upper molar series, 75.3; zygomatic width, 142; palatal length, 121.2; length of m^1, 24.5; length of mandible, 173; length of lower molar series, 72. Ex type in American Museum of Natural History.

Ursus americanus pugnax Swarth.

Ursus americanus pugnax Swarth, Univ. Calif. Pub. Zool., VII, 1911, p. 141.

Type locality. Rocky Bay, Dall Island, Alaska.

Ursus alexandræ Merriam.

Ursus alexandræ Merr., Proc. Biol. Soc. Wash., XXVII, 1914, p. 174.

Type locality. Kusilof Lake, Kenai Peninsula, Alaska.

Genl. Char. Size large; skull long, narrow; rostrum very broad; sagittal crest long, high; claws very long.

Color. General hue uniform pale brown (varying among individuals to light reddish brown or grayish yellow); yellowish brown between ears; legs and feet slightly darker. Type in United States National Museum.

Genus Thalarctos.

Thalarctos maritimus ungavensis Knottnerus-Meyer.

Thalarctos maritimus var. *ungavensis* Knottnerus-Meyer, Sitzungsb. Gesell. Naturf. Freunde, Berlin, 1908, p. 181.

Type locality. Ungava Bay, Ungava, Canada.

Thalarctos eogrœnlandicus Knottnerus-Meyer.

Thalarctos eogrœnlandicus Knottnerus-Meyer, Sitzungsb. Gesell. Naturf. Freunde, Berlin, 1908, p. 182.

Type locality. Pack ice off coast of eastern Greenland.

Thalarctos labradorensis Knottnerus-Meyer.

Thalarctos labradorensis Knottnerus-Meyer, Sitzungsb. Gesell. Naturf. Freunde, Berlin, 1908, p. 183.

Type locality. Okak, Labrador.

Ursus arctos schwenki Shoemaker.

Ursus arctos schwenki Shoemaker, Stories of Great Pennsylvania Hunter, 1913, p. 25.

Family **Procyonidæ. Raccoons, Coatis, etc.**

Subfamily **Procyoninæ.**

Genus Bassariscus (118).

Bassariscus astutus insulicola Nelson and Goldman.

Bassariscus astutus insulicola Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 26.

Type locality. San José Island, Lower California, Mexico.

Genl. Char. Allied to *B. saxicola* and *B. palmarius* but more yellow in color.

Color. Head grayish, face markings white and gray; upperparts dull ochraceous-buff; flanks and outer side of limbs paler; underparts pale buff; feet above pale buff; tail above with seven black and seven white rings, tip black; beneath cream-buff. Ex type in United States National Museum.

Measurements. Total length, 715; tail, 362; hind foot, 70. Skull: Total length, 77.2; occipito-nasal length, 69.1; Hensel, 69.8; zygomatic width, 50.6; intertemporal width, 14.4; palatal length, 32; length of upper molar series, 26.8; length of mandible, 53; length of lower molar series, 29. Ex type in United States National Museum.

Bassariscus astutus palmarius Nelson and Goldman.

Bassariscus astutus palmarius Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 26.

Type locality. Comondu, Lower California, Mexico.

Genl. Char. Similar to *B. saxicola* but darker; skull narrower.

Color. Top of head and upperparts grayish drab tinged with buff, tips of long hairs washed with black; flanks pinkish buff; lips whitish; side of muzzle, orbital rings and hind part of cheeks blackish; legs buff; underparts cream-buff; feet cream color; ears brownish at base, grayish toward tip; tail above and beneath with seven black and seven white rings, tip black. Ex type in United States National Museum.

Measurements. Total length, 730; tail, 367; hind foot, 72. Skull: Total length, 78.6; occipito-nasal length, 703; Hensel, 70.3; zygomatic width, 48.4; intertemporal width, 17.6; length of upper molar series, 27.2; length of lower molar series, 29.3. Ex type in United States National Museum.

Bassariscus astutus nevadensis Miller.

Bassariscus astutus nevadensis Miller, Proc. Biol. Soc. Wash., XXVI, 1913, p. 159.

Type locality. Eldorado Canyon, Clark County, Nevada.

Genl. Char. Smaller than *B. a. oregonus;* skull resembles that of *B. a. palmarius* but the teeth are larger.

Color. Head in front of ears gray; upperparts and sides ashy; tips of hairs black, little of the buff color appearing; underparts cream-buff; legs and feet whitish; tail white, with six rings and tip black. Ex type in United States National Museum.

Measurements. Total length, 640; tail, 310; hind foot, 57. Skull: Occipito-nasal length, 68.1; Hensel, 65.2; zygomatic width, 43.4; intertemporal width, 15; length of nasals, 26.4; palatal length, 32; length of upper molar series, 30.2; length of mandible, 57.4; length of lower molar series, 31.8. Ex type in United States National Museum.

Genus Bassaricyon (119).

Bassaricyon richardsoni Allen.

Bassaricyon richardsoni Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 662.

Type locality. Rio Grande, Atlantic slope, Nicaragua.

Color. Top of head grayish brown; hairs black-tipped and forming a black spot on crown, extending to ears; general color of upperparts of body pale fulvous, with black tips to the hairs, intensifying the dorsal line from the head to root of tail; flanks pale rufous, hairs not black-tipped; outer side of limbs pale rufous; side of nose and chin dusky brown; underparts and inner side of limbs chamois; feet like outer side of limbs; tail pale fulvous with a dark median line formed of black-tipped hairs. Ex type in American Museum of Natural History.

Measurements. Total length, 950; tail, 480; hind foot, 80 (collector). Skull: Total length, 81.8; occipito-nasal length, 77; Hensel, 72; zygomatic width, 53; intertemporal width, 17; length of nasals, 15; palatal length, 45; length of upper molar series, 22.2; length of mandible, 58.1; length of lower molar series, 24.9. Ex type in American Museum of Natural History.

Bassaricyon gabbi orinomus Goldman.

Bassaricyon gabbi orinomus Goldm., Smith. Misc. Coll., LX, No. 2, 1912, p. 16.

Type locality. Cana, eastern Panama. Altitude 1800 feet.

Genl. Char. Similar to *B. gabbi* in size, but differing in cranial characters; broader basi-occipital; bullæ smaller; post-orbital processes very long.

Color. Entire upperparts pale fulvous, hairs on dorsal line black-tipped making this darker; top of head and face grizzled gray; underparts orange-buff in middle of belly; buffy yellow on sides; tail above like dorsal line, growing paler towards the tip which is brownish; beneath paler; fore feet brown, hind feet pale fulvous which is also the color of the limbs; ears blackish at tip, rest brown. Ex type in United States National Museum.

Measurements. Total length, 820; tail, 419; hind foot, 86. Skull: Total length, 82.2; Hensel, 71.9; zygomatic width, ; intertemporal width, 55.3; length of nasals, 19; length of upper molar series, 24; length of mandible, 56.3; length of lower molar series, 26. Ex type in United States National Museum.

Genus Procyon (120).

Procyon minor Miller.

Procyon minor Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 4.

Type locality. Ponite-à-Pitre, Guadeloupe, Lesser Antilles.

Genl. Char. Size small; posterior extension of palate wider than distance from last molar to anterior border of mesopterygoid fossa.

Color. Upperparts grizzled gray; back clouded with black; neck tinged with yellow; face with the usual black markings; underparts dark wood-brown, long hairs whitish; interramial bar narrow, indistinct; tail like back, the rings narrow, distinct; large white spot on tip of ear. Ex type in United States National Museum.

Measurements. Total length, 625; tail, 185; hind foot, 85. Skull: Occipito-nasal length, 91.7; Hensel, 86; zygomatic width, 55.4; intertemporal width, 17.8; breadth of braincase, 44.8; length of nasals, 27.2; length of upper molar series, 33.3; length of mandible, 70.4; length of lower molar series, 39. Ex type in United States National Museum.

Procyon pumilus Miller.

Procyon pumilus Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 3.

Type locality. Ancon, Panama.

Genl. Char. Similar to *P. pygmæus* Merriam, from Yucatan, but yellowish, teeth less reduced and nasal bones not distinctly widened posteriorly.

Color. Top of head finely grizzled gray; upperparts and sides

clear grizzled gray; under fur drab, tips of long hairs black, and a subterminal white band; dorsal region darker than rest of upperparts and sides; black band across face broad; underparts drab, long hairs white, a broad dark interramial band; fore legs like flanks but tinged with drab; hind legs blackish above heel on inner side; tail buff, with seven black rather narrow rings. Ex type in United States National Museum.

Measurements. Total length, 665; tail, 235; hind foot, 97. Skull: Occipito-nasal length, 93.1; Hensel, 25.1; zygomatic width, 63.6; intertemporal length, 20.4; length of nasals, 23.2; length of upper molar series, 34; length of mandible, 75; length of lower molar series, 37.3. Ex type in United States National Museum.

Procyon lotor crassidens Hollister.

Procyon lotor crassidens Hollister, Proc. Biol. Soc. Wash., XXVII, 1914, p. 142.

Type locality. Talamanca, Costa Rica.

Genl. Char. Similar to *P. l. hernandezii*, but with larger molars.

Color. Face with usual mask and markings; crown and upperparts blackish gray, hairs ringed with buff, tips black, under fur Prout's-brown; a black line from ears to withers; arms buffy; legs like back; tail ringed with black and pale orange-yellow; underparts, hands and feet buffy. Type in United States National Museum.

Measurements. Total length, 925; tail, 325; foot, 118. Skull: Total length, ——; zygomatic width, 75.5; interorbital width, 25.7; length of nasals, 34.5; mastoid width, 65.8. Type in United States National Museum.

Procyon lotor fuscipes Mearns.

Procyon lotor fuscipes Mearns, Proc. Biol. Soc. Wash., XXVII, 1914, p. 63.

Type locality. Las Moras Creek, Fort Clark, Kinney County, Texas.

Genl. Char. Size large, similar to *P. lotor*, with colors varying in hue and distribution. Skull with slender, lengthened rostrum; palate narrow; bullæ long, flattened externally.

Color. Black face-mask solid and continuous on side of head below ear and extending from grizzled black crown to end of nose; grizzled area borders the black mask; sides of muzzle and lower lip white; nape washed with rust color; this hue indistinct on interscapular region; upperparts from nape to tail pale gray, the long hairs with black tips, this color being prominent on lower dorsal region; fore and hind legs and feet fuscous and gray mixed; throat benzo-brown;

rest of underparts grayish white; tail with six blackish rings and a black tip; ear black on basal half of outer surface, white on apical half. Ex type in United States National Museum.

Measurements. Total length, 900; tail, 290; hind foot and claw, 132. Skull: Occipito-nasal length, 110; Hensel, 114.3; zygomatic width, 85; intertemporal width, 27; length of nasals, 34.6; length of upper molar series, 37.9; length of mandible, angle to symphysis, 68.4; length of lower molar series, 42.5. Ex type in United States National Museum.

Procyon lotor ochraceus Mearns.

Procyon lotor ochraceus Mearns, Proc. Biol. Soc. Wash., XXVII, 1914, p. 64.

Type locality. Sonoyta River near Quitobaquita, at Monument No. 172, 421 miles west of the Rio Grande, and 113 miles east of the Colorado River. Altitude 1181 feet.

Genl. Char. Similar to *P. lotor* but color more ochraceous, and with less black.

Color. Black face-mask as in raccoons generally; cinnamon-drab on upper side of muzzle; side of face benzo-brown; sides and under side of muzzle, angle of mouth and lower jaw white; crown whitish, grading to purplish gray towards occiput; under fur drab; upperparts buff, the long hairs tipped with black on thoracic region and flanks but with brownish black on middle of lumbar and lower thoracic regions; no black at base of ear; limbs gray on outer side, grayish white on inner; feet clay-white; underparts grayish white, the light drab under fur showing everywhere; tail above yellowish white with five rings of brown and yellowish hairs; beneath whitish drab; ears and whiskers white. Ex type in United States National Museum.

Measurements. Total length, 750; tail, 310; hind foot and claw, 115. Skull: Occipito-nasal length, 101.2; Hensel, 99; zygomatic width, 73; intertemporal width, 23.5; length of nasals, 28.4; length of upper molar series, 34.8; length of mandible, 83.1; length of lower molar series, 41. Ex type in United States National Museum.

Procyon lotor californicus Mearns.

Procyon lotor californicus Mearns, Proc. Biol. Soc. Wash., XXVII, 1914, p. 66.

Type locality. Near Monument No. 258, Mexican Boundary, San Diego County, California.

Genl. Char. Similar to *P. l. psora*, but smaller and paler in color. Skull narrower; bullæ compressed laterally.

Color. Black face-mask as usual, bordered by a white band;

crown brownish black, mixed with grayish white; nape and between shoulders tinged with clay color; upperparts grayish white, long hairs black-tipped; lower lip white; underparts white, under fur showing; throat sepia; fore limbs soiled grayish white; hind limbs and feet grayish white, dark under fur showing; above heel brownish black; tail above soiled grayish white with six dark rings and black tip, beneath the rings are practically obsolete; ears white, black at base. Ex type in United States National Museum.

Measurements. Total length, 810; tail, 312; hind foot, 112. Skull: Occipito-nasial length, 104.4; Hensel, 102.5; zygomatic width 75; intertemporal wdth, 25; width of braincase, 55; length of nasals,, 32.2; length of upper molar series, 36; length of mandible, 84;. length of lower molar series, 40.3. Ex type in United States National Museum.

Genus [1] Euprocyon.

Euprocyon Gray, Proc. Zool. Soc. Lond., 1864, p. 705. Type *Ursus cancrivorus* Cuvier.

"Tail slender, eight or nine-ringed. Forehead of skull flat, in a line with the nose; braincase swollen, palate only shortly produced, and broad behind; grinders large." The carnassial has the commissure of the median outer cusp, and also the postero-internal cusp absent; third upper incisor lacks the usual short independent cusp; palate behind last molars only one-fourth the total length; molariform cusps short, powerful; claws blunt.

Euprocyon cancrivorus panamensis Goldm.

Euprocyon cancrivorus panamensis Goldm., Smith. Misc. Coll. LX, 1913, No. 22, p. 15.

Type locality. Gatun, Canal Zone, Panama.

Genl. Char. Similar to *E. cancrivorus*, but darker; facial line longer.

Color. Top of head grizzled black and gray; sides of rostrum and supraorbital streaks whitish; face and lower part of cheeks black; upperparts black and ochraceous-buff, black predominating; lips, chin and throat grayish white; underparts pale ochraceous-buff; outer side of limbs black; feet brownish; tail with seven or eight black and grayish alternating rings, tip black; ears yellowish. Ex type in United States National Museum.

Measurements. Total length, 950; tail, 350; hind foot, 142. Skull: Occipito-nasal length, 130; Hensel, 114.9; zygomatic width,

[1] Employed as a subgenus in Check-List, p. 402.

83.8; intertemporal width, 25.7; length of nasals, 32; palatal length, 75.8; length of upper molar series, 40.3; length of mandible, 32.3; length of lower molar series, 47.1. Ex type in United States National Museum.

Genus Potos (122).

Potos flavus isthmicus Goldman.

Potos flavus isthmicus Goldm., Smith Misc. Coll., LX, 1913, No. 22, p. 14.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama. Altitude 5200 feet.

Genl. Char. Similar to *P. f. chiriquensis*, but dorsal stripe black and distinct; intertemporal region of skull narrower; dentition heavy.

Color. Entire upperparts yellowish tawny, hairs tipped with black; median stripe from near shoulders to root of tail black; underparts brownish yellow, with rusty brown spots on throat and abdomen; tail above like back, darkest at the tip, beneath paler; muzzle, ears and toes blackish. Ex type in United States National Museum.

Measurements. Total length, 910; tail, 455; hind foot, 93. Skull: Occipito-nasal length, 89.7; Hensel, 74; intertemporal width, 18.2; zygomatic width, 57; palatal length, 34.8; length of nasals, 17.5; length of upper molar series, 19; length of mandible, 51.8; length of lower molar series, 22.9. Ex type in United States National Museum.

Family **Mustelidæ.**

Subfamily **Melinæ.**

Genus Conepatus (125).

Conepatus nicaraguæ Allen.

Conepatus nicaraguæ Allen, Bull. Am. Mus. Nat. Hist., XXVIII, 1910, p. 106.

Type locality. San Rafael del Norte, Nicaragua.

Color. Middle of crown, occiput and back to root of tail white, rest of pelage on body and limbs black; tail entirely white except at base, beneath which is black. Ex type in American Museum of Natural History.

Measurements. Total length, 690; tail, 270; hind foot, 80. Skull: Total length, 79; zygomatic width, 47; intertemporal width,

23; mastoid width, 39.5. Ex type in American Museum of Natural History.

Conepatus mesoleucus telmalestes Bailey.

Conepatus mesoleucus telmalestes Bailey, N. Am. Fauna, No. 25, 1905, p. 203.

Swamp White-backed Skunk.

Type locality. Big Thicket, 7 miles northeast of Sour Creek, Texas.

Geogr. Distr. Hardin and Liberty Counties, Texas.

Genl. Char. Similar to *C. mesoleucus*. Skull more slender; dentition lighter.

Color. Upperparts and tail white; rest of body, face and limbs black. Ex type in United States National Museum.

Measurements. Total length, 625; tail vertebræ, 257; hind foot, 78. Skull: Basal length, 65.2; zygomatic width, 44.3; intertemporal breadth, 22.3; mastoid breadth, 40.3; length of upper molar series, 16.5; length of mandible, 44; length of lower molar series, 20.8. Ex type in United States National Museum.

Conepatus tropicalis trichurus Thomas.

Conepatus tropicalis trichurus Thos., Ann. and Mag. Nat. Hist., Ser. 7, XV, 1905, p. 585.

Type locality. Boquete, Chiriqui, Panama. Type in British Museum.

Genus Spilogale (126).

The genus *Spilogale* has been monographed by Mr. A. H. Howell in North American Fauna, No. 26, 1906. Two forms have been described as new. The only change of importance made in the nomenclature was the substitution of the name *Viverra putorius* Linnæus given to the little skunk which ranges from northern Virginia to South Carolina, Georgia, Alabama and Mississippi, for *S. ringens* Merriam. The latter name now becomes a synonym.

Spilogale angustifrons Howell.

Spilogale angustifrons Howell, N. Am. Fauna, No. 26, 1906, p. 27.

Type locality. San Bartolome, State of Chiapas, Mexico.

Geogr. Distr. Highlands, State of Chiapas, Mexico, and Costa Rica, Guatemala.

Genl. Char. Similar to *S. a. tropicalis;* skull narrower, dentition heavier; mastoids not inflated but with pronounced upper ridge; upper molars larger, lower carnassial broader.

Color. Like *S. a. tropicalis*, but base of tail less white, the white

spot on thigh not continuous with white spot on flank. Ex type in United States National Museum.

Measurements. Total length, 380; tail vertebræ, 123; hind foot, 45. Skull: Occipito-nasal length, 49.5; zygomatic width, 33.7; intertemporal width, 14.5; palatal length, 17.7; length of upper molar series, 12.6; length of mandible, 32.9; length of lower molar series, 16.3. Ex type in United States National Museum.

Spilogale microdon Howell.

Spilogale microdon Howell, N. Amer. Fauna, No. 26, 1906, p. 34.

Type locality. Comondu, Lower California.

Geogr. Distr. Known only from type-locality.

Genl. Char. Smaller than *S. phenax;* tail longer, hind foot shorter; teeth very small; mastoids greatly inflated.

Color. Similar to *S. phenax*, but dorsal stripes wider than median pair; frontal patch large; terminal third of tail white. Ex type in United States National Museum.

Measurements. Total length, 410; tail vertebræ, 158; hind foot, 45. Skull: Occipito-nasal length, 53; intertemporal width, 33.7; zygomatic width, 35.4; palatal length, 16.8; length of upper molar series, 14; length of mandible, 15.3; length of lower molar series, 18.4. Ex type in United States National Museum.

Subfamily **Mustelinæ.**

Genus Tayra.

Tayra barbara inserta Allen.

Tayra barbara inserta Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 662.

Type locality. Ulucc, Matagalpa, Nicaragua.

Color. Head and neck brownish black; body above and beneath, limbs and tail black; no white present. Ex type in American Museum of Natural History.

Measurements. Slightly smaller than *T. b. biologiæ* from Panama. Skull: Total length, 115.6; occipito-nasal length, 107.8; Hensel, 104; zygomatic width, 66.2; intertemporal width, 24; length of nasals, 73.4; length of upper molar series, 23.8; length of mandible, 18.8; length of lower molar series, 27.1. Ex type in American Museum of Natural History.

Genus Mustela (129).

Subgenus **Mustela.**

Mustela costaricensis Goldman.

Mustela costaricensis Goldm., Proc. Biol. Soc. Wash., XXV, 1912, p. 9.

Type locality. San José, Costa Rica.

Genl. Char. Larger than *M. affinis;* bullæ larger, less flattened.

Color. Narrow white streaks across forehead and cheeks; these, however, wanting on type; top of head and neck black; upperparts, outer side of limbs and feet mink-brown; chin and throat white; underparts on middle of belly yellowish buff; upperpart of thighs and arms and tail mink-brown; top of tail black. Ex type in United States National Museum.

Measurements. Total length, 376.9; tail, to end of hairs, 87.9; hind foot, 39 (skin). Skull: Occipito-nasal length, 49.4; Hensel, 47.5; zygomatic width, 29; intertemporal width, 11.7; length of nasals, 7; length of upper molar series, 12.7; length of mandible, 36.8; length of lower molar series, 14.2. Ex type in United States National Museum.

Mustela cicognanii mortigena Bangs.

Mustela cicognanii mortigena Bangs, Bull. Mus. Comp. Zool., 54, 1913, p. 511.

Type locality. Bay St. George, Newfoundland.

Mustela arctica polaris (Barrett-Hamilton).

Putorius arcticus polaris Barrett-Hamilton, Ann. and Mag. Nat. Hist., Ser. 7, XIII, 1904, p. 393.

Type locality. Hall Land, Greenland. Latitude 82° N.; longitude 59° 20′ W.

Mustela audax (Barrett-Hamilton).

Putorius audax Barrett-Hamilton, Ann. and Mag. Nat. Hist. Ser. 7, XIII, 1904, p. 392.

Mustela macrophonius (Elliot).

Putorius macrophonius Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 235.

Type locality. Achotal, Vera Cruz, Mexico.

Geogr. Distr. Known only from type-locality.

Genl. Char. Size very small; tail exceedingly long; skull large and heavy; teeth large; canines long, narrow.

Color. Top and sides of head black graduating into chestnut-brown of upperparts and sides of body; this hue extending well on to the underparts between the limbs; limbs, hands, feet and tail chestnut-brown, the last tipped with black; white spot above eye and white stripe from above eye to ear; chin and throat white reaching into the dark ochraceous-buff of the underparts.

Measurements. Total length, 598; tail vertebræ, 246; hind foot, 59; ear, 23. Skull: Total length, 60; Hensel, 54; zygomatic width, 34; interorbital width, 8; palatal length, 24; length of upper toothrow including canine, 16; length of canine, 9; length of mandible, 35; of lower toothrow including canine, 20.

Subgenus **Lutreola.**

[1] **Mustela macrodon** (Prentiss).

Lutreola macrodon Prentiss, Proc. U. S. Nat. Mus., XXVI, 1903, p. 887.

Lutreola vison antiquus Loomis, Am. Journ. Sci., XXXI, 1911, p. 228.

Type locality. Shellheaps at Brooklin, Hancock, Maine.

Measurements. Skull: Fragment only obtained, consisting of superior maxillæ; portion of nasals, right zygoma, and palate extending but 6 mm. behind molars. Incisor row, 8.25; length of premolars, 18.25; width of palate between canines, 9; width of palate between molars, 12.50; from middle of incisor row to inner tubercle of molar, 30; space between antorbital foramina, 22; width of narial opening, 9.25; width of antorbital foramen, 6 × 4; length of incisor row to tip of nasals, 14.25. Type in United States National Museum.

Mustela vison vulgivaga Bangs.

Mustela (*Lutreola*) *vulgivaga* Bangs, Proc. Bost. Soc. Nat. Hist., XXVI, 1895, p. 539.

Type locality. Burbridge, Plaquemines Parish, Louisiana.

Mustela vison nesolestes (Heller).

Lutreola vison nesolestes Heller, Univ. Calif. Pub. Zool., V, 1909, p. 259.

Type locality. Windfall Harbor, Admiralty Island, Alaska.

[1] According to Hardy (Forest and Stream, 61, 1903, p. 125) this animal became extinct about 1860.

Mustela vison letifera Hollister.

Mustela vison letifera Hollister, Proc. U. S. Nat. Mus., 44, 1913, p. 475.

Type locality. Elk River, Minnesota.

Genl. Char. Like *M. v. lacustris*, but smaller and paler.

Color. Reddish mink-brown, paler beneath with white spot on chin and breast; legs and feet slightly darker; tail blackish mink-brown. Ex type in United States National Museum.

Measurements. Total length, 660. Skull: Total length, 69.3; Occipito-nasal length, 63.6; zygomatic width, 41.5; intertemporal width, 13.2; length of upper molar series, 17.4; length of mandible, 42.7; length of lower molar series, 20.5. Ex type in United States National Museum.

Mustela primulina Jackson.

Mustela primulina Jacks., Proc. Biol. Soc. Wash., XXVI, 1913, p. 123.

Type locality. Five miles northeast of Avilla, Jasper County, Missouri.

Genl. Char. Back darker than *M. longicauda* or *M. spadix*.

Color. Upperparts and hind feet Brussels-brown; flanks paler; fore feet and toes white; top of head and face sepia; chin white; underparts primuline-yellow, darkest on throat and middle of belly; anal region Brussels-brown; tail above Brussels-brown, tip black, beneath paler. Ex type in United States National Museum.

Measurements. Total length, head and body, 248 (skin); tail (incomplete), 89.5; hind foot, 44. Skull, broken: Occipito-nasal length, 46.9; length of nasals, 7.1; length of upper molar series, 11.6; length of mandible, 26.6; length of lower molar series, 13.7. Ex type in United States National Museum.

Mustela campestris Jackson.

Mustela campestris Jacks., Proc. Biol. Soc. Wash., XXVI, 1913, p. 124.

Type locality. Beemer, Nebraska.

Genl. Char. Similar to, but paler than *M. rixosus*. Skull narrower behind orbits, and across braincase and palate; bullæ flatter.

Color. Head and upperparts Prout's-brown, darkest on face; toes of both front and hind feet white; tail Prout's-brown, tip black with some white hairs. Ex type in United States National Museum.

Measurements. Total length, 184; tail, 32; hind foot, 19. Skull: Occipito-nasal length, 30; Hensel, 27.1; zygomatic width, 15; intertemporal width, 6.2; palatal length, 10.9; length of upper molar series,

6; length of mandible, 14.4; length of lower molar series, 7.3. Ex type in United States National Museum.

Mustèla peninsulæ olivacea Howell.

Mustela peninsulæ olivacea Howell, Proc. Biol. Soc. Wash., XXVI, 1913, p. 139.

Type locality. Autaugaville, Alabama.

Genl. Char. Like *M. peninsulæ*, but paler in winter. Skull with broad braincase, wide zygomata; inflated bullæ and heavy molars.

Color. Summer. Head Vandyke-brown; small white spots between eyes; upperparts mummy-brown, this color extending over flanks on to belly; underparts cartridge-buff; toes of front feet cream color, those of hind feet whitish; tail like back, tip black.

Winter. Upperparts buffy brown; head darker; white patch behind eyes; underparts straw-color blotched with cartridge-buff; toes of fore feet cream-buff, of hind feet whitish; tail buffy brown, tip black. Ex type in United States National Museum.

Measurements. Total length, 420; tail, 140; hind foot, 50. Skull: Occipito-nasal length, 49.1; Hensel, 46.1; zygomatic width, 29.3; intertemporal width, 9; length of nasals, 6; palatal length, 21.6; length of upper molar series, 11.5; length of mandible, 30; length of lower molar series, 13.8. Ex type in United States National Museum.

Subfamily **Lutrinæ.**

Genus Lutra (131).

Lutra latidens Allen.

Lutra latidens Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 660.

Type locality. Lavala, Matagalpa, Nicaragua.

Color. Head and upperparts snuff-brown; varying in depth of shade according to the light; flanks paler; outer side of limbs like back; chin and throat pale fulvous; rest of underparts and inner side of hind legs pale brown; tail like back. Ex type in American Museum of Natural History.

Measurements. Total length, 1280; tail, 490 (collector). Skull is broken into small pieces, so general measurements cannot be given. Length of the molar series, including as usual the premolars, 37.5; length of lower molar series, 37.5; length of mandible, 72; length of pm_3, 16; width at middle, 8; width near posterior border, 7.6. Ex type in American Museum of Natural History.

Lutra repanda Goldman.

Lutra repanda Goldm., Smith. Misc. Coll., LXIII, 1914, p. 3.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Genl. Char. Similar to *L. colombiana;* dental characters different. Size small; upper molars narrower; upper carnassial narrower; inner lobe less produced posteriorly.

Color. Upperparts mars-brown; lips whitish, as are also the inner side of fore legs; rest of underparts grayish brown, with throat, pectoral and inguinal regions paler; tail like upperparts; outer side of fore legs dark brown; fore feet, hind legs and hind feet paler brown. Ex type in United States National Museum.

Measurements. Total length, 1085; tail, 500; hind foot, 119. Skull: Greatest length, 117.2; Occipito-nasal length, 95.6; Hensel, 95.6; zygomatic width, 72; intertemporal width, 23.1; mastoid width, 69.9; palatal length, 49.8; length of upper molar series, 28.4; length of mandible, 66.2; length of lower molar series, 31.2. Ex type in United States National Museum.

[1] **Lutra periclyzomæ** Elliot.

Lutra periclyzomæ Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 80.

Type locality. Gawi, west coast of Moresby Island, Queen Charlotte Islands, British Columbia.

Color. Head, entire upperparts and sides of neck dark cinnamon-brown, changing with the lights, at times brilliant with silvery reflections; lips, throat and chest warm buff; abdomen and inguinal region similar to upperparts but paler; tail, like back, the apical half with the hairs white-tipped giving this part the appearance of being frosted. Ex specimen No. 17611 in Field Museum of Natural History.

Measurements. Skull: Total length, 122; Hensel, 107; zygomatic width, 81; intertemporal constriction, 20; width across postorbital processes, 40; width of rostrum at canines, 30.5; palatal length, 55; length of upper tooth row, anterior edge of canine to posterior edge of last molar, 40; length of nasals, 17.5; total length of mandible, angle to tip of incisors, 76; length of lower tooth row, anterior edge of canine to posterior edge of last molar, alveolar border, 46; length of canine, 13; length of lower carnassial, 15. Ex type in Field Museum of Natural History.

[1] This species was originally described from a skull; afterwards some skins were procured, one of which is now described.

Family **Odontobænidæ.**

Genus Odontobænus (137).

Odontobænus divergens (Illiger).

Trichechus divergens Illig., Abh. Akad. Wiss. Berlin, 1815, p. 68.

Trichechus obesus Illig., Abh. Akad. Wiss. Berlin, 1815, p. 64, *nomen nudum*; Elliot, Syn. N. Am. Fauna, F. C. M. Pub., II, 1901, p. 358.

Odontobænus obesus Elliot, Check-List Mamm. N. Am. Cont. and W. Indies, F. C. M. Pub., VI, 1905, p. 439.

Odobenus divergens Stejn., Proc. Biol. Soc. Wash., XXVII, 1914, p. 145.

Type locality. Western coast of Arctic Sea.

Geogr. Distr. Coast of northeastern Asia eastward to Alaska.

Mr. Stejneger has shown (*l. c.*) that Illiger's name *obesus* for this species is a *nomen nudum*, being "without any trace of diagnosis, indication, or literary reference whatever"; but on page 68 of the same paper he bestows a tenable name, *divergens*, upon the animal, which will be the one by which it must hereafter be known.

Family **Phocidæ.**

Subfamily **Phocinæ.**

Genus Phoca (141).

Phoca ochotensis macrodens Allen.

Phoca ochotensis macrodens Allen, Bull. Am. Mus. Nat. Hist., XVI, 1902, p. 483.

Type locality. Avatcha Bay, Kamchatka. Ranges to Point Barrow, Alaska.

Subgenus **Erignathus.**

Phoca barbata nautica Pallas.

Phoca nautica Pallas, Zoogr. Rosso-Asiat., I, 1811, p. 108.

Erignathus barbatus nauticus Osgood, N. Am. Fauna, No. 24, 1904, p. 47.

Type locality. Okhotsk Sea.

Geogr. Distr. Okhotsk Sea eastward to coast of Alaska.

This form was placed in the Check-List as a synonym of *Phoca barbata*, but lately it has been recognized as a subspecies. *Erignathus* has also been employed by some writers as a distinct genus.

Order **Insectivora. Insectivores.**

Family **Soricidæ. Shrews.**

Genus Sorex (143). Common Shrews.

Sorex obscurus neomexicanus Bailey.

Sorex obscurus neomexicanus Bailey, Proc. Biol. Soc. Wash., XXVI, 1913, p. 133.

Type locality. Cloudcroft, New Mexico, Altitude 9000 feet.

Genl. Char. Larger than *S. obscurus*, darker in color, less reddish.

Color. Upperparts sepia; underparts brownish. Ex type in United States National Museum.

Measurements. Total length, 118; tail, 45; hind foot, 15. Skull: Occipito-nasal length, 16.3; Hensel, 15.3; intertemporal width, 4.2; width of braincase, 8.8; length of upper tooth row, 7.6; length of rostrum, 8.5; palatal length, 7; length of mandible, 9.9; length of lower tooth row, 9. Ex type in United States National Museum.

Sorex leucogenys Osgood.

Sorex leucogenys Osgood, Proc. Biol. Soc. Wash., XXII, 1909, p. 52.

Type locality. Mouth of the Cañon of Beaver River, about 3 miles from Beaver, Beaver County, Utah.

Genl. Char. Similar to *S. merriami* but larger; braincase more elevated; tail shorter than head and body; rostrum thick, heavy; third unicuspid larger than fourth.

Color. Upperparts pale brownish drab; flanks écru-drab; chin and sides of face below eyes and on nose to tip, hairs white to roots; whiskers white; underparts creamy white; feet white; tail above brownish drab, tip white, beneath white. Ex type in United States National Museum.

Measurements. Total length, 107; tail, 38; hind foot, 12.5. Skull: Total length, 17.2; occipito-nasal length, 14.8; Hensel, 13.1; intertemporal width, 3.7; palatal length, 7; length of nasals, 4.6; length of upper molar series, 6.8; length of mandible, 8; length of lower molar series, 4.2. Ex type in United States National Museum.

Sorex lagunæ Nelson and Goldman.

Sorex lagunæ Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 27.

Type locality. La Laguna, Sierra Laguna, Lower California, Mexico.

Genl. Char. Like *S. ornatus* but darker on underparts.

Color. Upperparts dark grayish brown; underparts paler; tail above blackish, beneath paler; feet dusky. Ex type in United States National Museum.

Measurements. Total length, 98; tail, 41; hind foot, 12.5. Skull: Occipito-nasal length, 16.1; intertemporal width, 3.5; length of palate, 4.9; length of upper molar series, 6.5; length of mandible, 7.7; length of lower molar series, 4.4. Ex type in United States National Museum.

Sorex californicus jucensis Nelson and Goldman.

Sorex californicus jucensis Nels. and Goldm., Proc. Biol. Soc. Wash. XXII, 1909, p. 27.

Type locality. Socorro, 15 miles south of San Quintin, Lower California, Mexico.

Genl. Char. Resembles *S. californicus*, but tail somewhat longer, feet darker. Skull has the braincase narrower and higher, more arched; third unicuspid very small, in this respect like *S. californicus*.

Color. Upperparts mixed smoky brown and grayish; underparts brownish gray and plumbeous; tail above dusky; beneath grayish, tip darkest. Ex type in United States National Museum.

Measurements. Total length, 101; tail, 41; hind foot, 12.5. Skull: Occipito-nasal length, 14.7; Hensel, 13.7; intertemporal width, 3.5; length of nasals, 5.5; palatal length, 5.5; length of upper molar series, 6; length of mandible, 8.8; length of lower molar series, 4.5. Ex type in United States National Museum.

Sorex dispar Batchelder.

Sorex dispar Batchelder, Proc. Biol. Soc. Wash., XXIV, 1911, p. 97.

Sorex macrurus Batchelder, Proc. Biol. Soc. Wash., X, 1896, p. 133 (nec Lehmann, 1822); Elliot, Syn, N. Am. Mamm., F. C. M. Pub. Zool., 1901, p. 364; *Id.* Check-List N. Am. Mamm., 1905, p. 443.

Type locality. Adirondack Mountains, New York.

The name *macrurus* originally given to this species being preoccupied, Batchelder (*l. c.*) proposes a new one *dispar*.

Sorex fontinalis Hollister.

Sorex personatus lesueuri Merr., N. Am. Fauna, No. 10, 1895 p. 61 (Part).

Sorex fontinalis Hollister, Proc. U. S. Nat. Mus., 40, No. 1825, 1911, p. 378.

Type locality. Cold Spring Swamp, near Beltsville, Maryland.

Genl. Char. Size small; tail comparatively short.

Color. Upperparts dark sepia, darkest on rump; sides broccoli-brown; underparts brownish gray; tail above like back, tip blackish, beneath pale yellowish brown. Ex type in United States National Museum.

Measurements. Total length, 90; tail, 31; hind foot, 10. Skull: Total length, 14.8; Hensel, 12.2; intertemporal width, 3.5; breadth of braincase, 7; palatal length, 5.6; length of upper molar series, 3.4; length of mandible, 6.9; length of lower molar series, 3.8. Ex type in United States National Museum.

Sorex montereyensis mariposæ Grinnell.

Sorex montereyensis mariposæ Grinnell, Univ. Calif. Pub. Zool., X, 1913, p. 189.

Type locality. Yosemite Valley, 4000 feet altitude, Mariposa County, California.

Sorex sinuosus Grinnell.

Sorex sinuosus Grinnell, Univ. Calif. Pub. Zool., X, 1913, p. 187.

Type locality. Grizzly Island, near Suisun, Solano County, California.

Sorex halicœtes Grinnell.

Sorex halicœtes Grinnell, Univ. Calif. Pub. Zool., X, 1913, p. 183.

Type locality. Salt Marsh near Palo Alto, Santa Clara County, California.

Genus Microsorex (144).

Microsorex winnemana Preble.

Microsorex winnemana Preble, Proc. Biol. Soc. Wash., XXIII, 1910, p. 101.

Type locality. Near Stubblefield Falls, Potomac River, Fairfax County, Virginia.

Genl. Char. Similar to *M. hoyi*, but smaller; braincase higher and more round; rostrum shorter.

Color. Head and face grayish brown tinged with ochraceous; upperparts grayish brown; underparts ashy gray; tail above grayish brown, beneath silvery gray.

Measurements. Total length, 78; tail, 28; hind foot, 9. Skull: Greatest length, 13.8; breadth of braincase, 6; palatal length, 2.8; mastoid width, 6.1; length of upper tooth row, incisors to last molar,

4.1; length of mandible, 5.3; length of lower tooth row, 4. Ex type in United States National Museum.

Genus Blarina (148).

[1] **Blarina brevicauda talpoides** (Gapper).

Sorex talpoides Gapper, Zool. Journ., V, 1830, p. 202.

Type locality. Between York and Lake Sincoe, Ontario, Canada.

Genus [2] Cryptotis.

Cryptotis Pomel, Archiv Sci. Phys. et Nat. Genève, IX, 1848, p. 249.

Type *Sorex cinereus* Bachman = *Sorex parvus* Say.

Cryptotis pergracilis macer Miller.

Cryptotis pergracilis macer Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 223.

Type locality. Near Guanajuato City, State of Guanajuato, Mexico.

Genl. Char. Similar to *C. pergracilis* Elliot, but third upper unicuspid larger.

Color. Type in alcohol.

Measurements. Total length, 67.4; tail, 17.4; hind foot, 10. Skull: Occipito-nasal length, 13.4; Hensel, 13; zygomatic width, 5; intertemporal width, 3.5; length of upper tooth row, 7.2; length of mandible, 8.4; length of lower tooth row, 6.6. Ex type in United States National Museum.

Cryptotis gracilis Miller.

Cryptotis gracilis Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 221.

Type locality. Head of Lari River, near base of Pico Blanco, Talamanca, Costa Rica. Altitude about 6000 feet.

Genl. Char. Size of *C. mexicana*, skull narrow, elongate.

Color. Upper and lower parts dark smoke gray; washed with blackish brown on upperparts; under fur slate-gray. Ex type in United States National Museum.

Measurements. Total length, 105; tail, 35; hind foot, 13.6. Skull: Occipito-nasal length, 17.9; intertemporal width, 4.9; zygomatic width, 5.2; breadth of braincase, 9; length of upper tooth row,

[1] Considered in Check-List as a synonym of *Blarina brevicauda* (Say).

[2] In Check-List made a synonym of *Blarina*, p. 460.

8.8; length of mandible, 10.4; length of lower tooth row, 7.8. Ex type in United States National Museum.

Cryptotis olivaceus (Allen).

Blarina olivaceus Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 669.

Type locality. San Rafael de Norte, Nicaragua. Altitude about 5000 feet.

Color. Above grayish brown, changing according to the light beneath whitish gray; feet whitish; tail above dusky, beneath grayish white. Ex type in American Museum of Natural History.

Measurements. Total length, 80; tail, 17; hind foot, 10. Skull: Broken, occipital region wanting; length of upper tooth row, 6.6; length of mandible, 8.8. Ex type in American Museum of Natural History.

Cryptotis frontalis Miller.

Cryptotis frontalis Miller, Proc. Biol. Soc. Wash., XXIV, 1911, p. 222.

Type locality. Near City of Tehuantepec, Mexico. Type in United States National Museum.

Genl. Char. Like *C. mexicana*, but skull more robust; teeth larger, the inner tubercles of upper unicuspids less developed.

Color. Type in alcohol.

Measurements. Total length, 93; tail, 27; hind foot, 12.2. Skull: Occipito-nasal length, 18.2; Hensel, 16.6; zygomatic width, 6.2; intertemporal width, 5.3; breadth of braincase, 10.2; length of mandible, 10.6; length of upper tooth row, 7.6; length of lower tooth row, 8. Ex type in United States National Museum.

Cryptotis merus Goldman.

Cryptotis merus Goldman, Smith. Misc. Coll. LX, 1912, p. 17.

Type locality. Near head of Rio Limon, Mount Pirri, eastern Panama.

Genl. Char. Similar to *C. orophila* but smaller; darker in color.

Color. Entire pelage above and beneath uniform black; feet dusky; tail black all around. Ex type in United States National Museum.

Measurements. Total length, 98; tail, 31; hind foot, 12.5. Skull: Total length, 19.1; zygomatic width, 6.5; breadth of braincase, 9.3; intertemporal width, 4.7; length of upper tooth row, 8.8; length of mandible, 9.6; length of lower tooth row, 5.7. Ex type in United States National Museum.

Family **Talpidæ.**

Subfamily **Scalopinæ.**

Genus Scalopus.

Scalopus aquaticus machrinoides Jackson.

Scalopus aquaticus machrinoides Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 19.

Type locality. Manhattan, Kansas.

Genl. Char. Size large, similar to *S. a. machrinus* but grayer in color.

Color. Entire upperparts clove-brown, paler on face, wrists and underparts; ventral portion washed with raw-umber. Ex type in United States National Museum.

Measurements. Skull: Occipito-nasal length, 36.9; zygomatic width, 17.4; intertemporal width, 8.0; length of nasals, 14.2; length of upper tooth row, 12.1; length of mandible, 22.8; length of lower tooth row, 12.0. Ex type in United States National Museum.

Scalopus aquaticus pulcher Jackson.

Scalopus aquaticus pulcher Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 20.

Type locality. Delight, Arkansas.

Genl. Char. Hind foot and skull larger than *S. aquaticus* with wider supraoccipital.

Color. Top of head mummy-brown; nose cinnamon-brown; upperparts dark fuscous, hairs tipped with pearl-gray; underparts sepia, base of fur plumbeous. Ex type in United States National Museum.

Measurements. Total length, 164; tail, 25; hind foot, 22. Skull: Occipito-nasal length, 35.9; Hensel, 29.4; zygomatic width, 15.7; intertemporal width, 7.7; palatal length, 14.6; length of nasals, 12.3; length of upper tooth row, 11.1; length of mandible, 22.2; length of lower tooth row, 11.0. Ex type in United States National Museum.

Scalopus aquaticus caryi Jackson.

Scalopus aquaticus caryi Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 20.

Type locality. Neligh, Nebraska.

Genl. Char. Similar to *S. a. intermedius*, but paler in color, and

nose and wrists lacking the ochraceous suffusion; skull shorter and broader.

Color. Upperparts pale drab, lighter on head; nose ivory color; underparts pale drab and neutral gray mixed, with a wash of Saccardo's cinnamon-brown. Ex type in United States National Museum.

Measurements. Total length, 160; tail, 31.5; hind foot, 22. Skull: Occipito-nasal length, 34.9; Hensel, 29.9; zygomatic width, 16.3; intertemporal width, 8.2; length of nasals, 10.7; length of upper tooth row, 11.1; length of mandible, 22.4; length of lower tooth row, 10.9. Ex type in United States National Museum.

Scalopus inflatus Jackson.

Scalopus inflatus Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 21.

Type locality. State of Tamaulipas, Mexico, 45 miles from Brownsville, Texas.

Genl. Char. Larger than *S. a. texensis*, and less ochraceous in color. Skull high, arched; rostrum broad; zygomatic arch heavy; outer groove pronounced in third upper premolar, first lower premolar small.

Color. Cheeks ochraceous; upperparts wood-brown and drab; underparts similar but mixed more conspicuously with mouse-gray. Ex type in United States National Museum.

Measurements. Skull: Imperfect, posterior portion of braincase and the basioccipital lacking. Palatilar length, 13.4; mastoid width, 17.0; intertemporal width, 7.1; length of upper tooth row, 11.1; length of mandible, 20; length of lower tooth row, 11.0. Ex type in United States National Museum.

Scalopus aquaticus howelli Jackson.

Scalopus aquaticus howelli Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 19.

Type locality. Autaugaville, Alabama.

Genl. Char. Size intermediate between *S. aquaticus* and *S. a. australis*, but paler; skull flat, rostrum long and narrow.

Color. Head and nape buffy brown; rest of upperparts dark drab; underparts like back but tinged with tawny olive. Ex type in United States National Museum.

Measurements. Total length, 152; tail, 20; hind foot, 18. Skull: Occipito-nasal length, 32.7; Hensel, 26.9; zygomatic width, 15.2; intertemporal width, 7.4; length of nasals, 12; length of upper tooth row, 10.2; length of mandible, 20.5; length of lower tooth row, 10.1. Ex type in United States National Museum.

Genus Scapanus (151).

Scapanus latimanus (Bachman).

Scalops latimanus Bachm., Boston Journ. Nat. Hist., IV, 1842, p. 34.

Scalops californicus Ayres, Calif. Acad. Sci., I, 1855, p. 53.

Scapanus townsendi Peters (nec Bachm.), Monatsb. K. Akad. Wiss. Berlin, 1863, p. 656.

Scapanus dilatus True, Proc. U. S. Nat. Mus. XVII, 1894, p. 242.

Scapanus californicus True, Proc. U. S. Nat. Mus., XIX, 1896, p. 52; Elliot, Syn. N. Am. Mamm., F. C. M. Pub., II, 1901, p. 392, Zool. Ser.

Scapanus latimanus Osgood, Proc. Biol. Soc. Wash., XX, 1907, p. 52.

Type locality. Monterey, Santa Clara County, California (see Osgood).

The type of this species is in the Berlin Museum, transmitted there by Deppe from Monterey, California. Mr. Osgood examined this type specimen and was convinced that it was the same as *Scalopus californicus* Ayres, which indeed it must be, as it is the only species of mole found in that locality, therefore Ayres's name must become a synonym, and the species be hereafter known as *Scapanus latimanus* (Bachman).

Scapanus latimanus occultus Grinnell and Swarth.

Scapanus latimanus occultus Grinnell and Swarth, Univ Calif. Publ. Zool., X, 1912, p. 131.

Type locality. Santa Anna Cañon, altitude 400 feet, Orange County, California.

Color. Pale brown with strong yellowish sheen above and beneath.

Measurements. Total length, 150; tail, 33; hind foot, 18. Skull: Total length, 31.5; Hensel, 25.6; zygomatic width, 12.3; intertemporal width, 7.1; length of nasals, 9; length of mandible, 19.4; length of upper molar series, 12.6; length of lower molar series, 10.9. Ex type in United States National Museum.

Scapanus latimanus sericatus Jackson.

Scapanus latimanus sericatus Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 55.

Type locality. Yosemite, Mariposa County, California.

Genl. Char. Smaller and grayer than *S. latimanus*.

Color. Upperparts olive-brown; underparts dark mouse-gray. Ex type in United States National Museum.

Measurements. Total length, 165; tail, 36; hind foot, 21. Skull: Greatest length, 34.3; Hensel, 29; zygomatic width, 12.9; intertemporal width, 7.2; mastoid width, 16.2; length of upper molar series, 13.2; length of mandible, 19; length of lower molar series, 13.1. Ex type in United States National Museum.

Scapanus latimanus grinnelli Jackson.

Scapanus latimanus grinnelli Jackson, Proc. Biol. Soc. Wash., XXVII, 1914, p. 56.

Type locality. Independence, Inyo County, California.

Genl. Char. Size small; skull short, elevated; rostrum short, wide.

Color. Upperparts fuscous; underparts grayish; throat and chest stained with Dresden-brown. Ex type in Museum of Vertebrate Zoölogy, University of California.

Measurements. Total length, 156; tail, 31; hind foot, 21. Skull: Greatest length, 33; Hensel, 26.5; zygomatic width, 14.5; intertemporal width, 7.8; palatal length, 13.1; mastoid width, 17; length of upper molar series, 12.7; length of mandible, 21.3; length of lower molar series, 11.4. Ex type in Museum of Vertebrate Zoölogy, University of California.

Order **Chiroptera. Bats.**

Family **Vespertilionidæ. Common Bats.**

Subfamily **Vespertilioninæ.**

Genus Myotis. (155).

Myotis grisescens Howell.

Myotis grisescens Howell, Proc. Biol. Soc. Wash., XXII, 1909, p. 46.

Type locality. Nickajack Cave, near Shellmound, Marion County, Tennessee.

Geogr. Distr. Indiana, Tennessee, and Missouri.

Genl. Char. Nearest *M. velifer*, but darker; wings attached to the feet near ankle joint.

Color. Upperparts from dark mouse-gray to dark hair-brown; underparts, hairs at tips pale smoky gray, mouse-gray basally; flanks and lower part of abdomen whitish; membrane, ears and feet black. Ex type in United States National Museum.

Measurements. Skull: Occipito-nasal length, 14.1; Hensel, 11.8; zygomatic width, 11; intertemporal width, 4.2; length of upper molar series, 3.9; length of mandible, 11.3; length of lower molar series, 5.9. Ex type in United States National Museum.

Myotis carissima Thomas.

Myotis carissima Thos., Ann. and Mag. Nat. Hist., Ser. 7, XIII, 1904, p. 383.

Type locality. Yellowstone Lake, Yellowstone Park, Wyoming.

Myotis baileyi Hollister.

Myotis baileyi Hollister, Proc. Biol. Soc. Wash., XXII, 1909, p. 44.

Type locality. Base of White Mountains, near Ruidoso, Lincoln County, New Mexico.

Genl. Char. Like *M. velifer* but smaller; tragus broad, pointed: wing from base of toes; forearm shorter.

Color. Upperparts sepia; underparts smoke-gray; ears, face and wings black. Ex type in United States National Museum.

Measurements. Total length, 72.6; tail, 27.8; foot (skin), 9.1: forearm, 40.3; ear, 14.9; tragus, 6.5; thumb, 6.4. Skull: Total

length, 14.6; zygomatic width, 10; intertemporal width, 4.1; breadth of braincase, 7.8; length of upper tooth row, 6.1; length of mandible, 11.6; length of lower tooth row, 6.2. Ex type in United States National Museum.

Myotis occultus Hollister.

Myotis occultus Hollister, Proc. Biol. Soc. Wash., XXII, 1909, p. 43.

Type locality. West side of Colorado River, 10 miles above Needles, San Bernardino County, California.

Genl. Char. Resembles *M. peninsularis* but smaller; forearm shorter; tragus shorter, tip blunt.

Color. Upperparts glossy Prout's-brown, tinged with cinnamon; underparts paler, buff-tinged; ears and wings brown. Ex type in United States National Museum.

Measurements. Total length, 96; tail, 40; foot, 10.5; tibia, 14; tragus, 6.5; thumb, 6. Skull: Total length, 15.3; zygomatic width, 9.5; intertemporal width, 4; length of upper tooth row, 5.9; length of mandible, 11.8; length of lower tooth row, 5.8. Ex type in United States National Museum.

Myotis pernox Hollister.

Myotis pernox Hollister, Smith. Misc. Coll., LVI, 1911, p. 4.

Type locality. Henry House, Alberta, Canada.

Genl. Char. Colors dark; braincase inflated.

Color. Upperparts dark brown, under fur black; border around base of interfemoral membrane burnt-umber; underparts dark drab-brown; ears and membranes blackish. Ex type in United States National Museum.

Measurements. Total length, 88.5; tail, 39.5; foot, 9.5; forearm, 36.5; ear, 13; tragus, 6.7; thumb and claw, 5.7; tibia, 17. Skull: Occipito-nasal length, 13.3; Hensel, 11.2; zygomatic width, 9.6; intertemporal width, 4.4; width of braincase, 8; length of upper molar series, 3.6; length of mandible, 11; length of lower molar series, 5.3. Ex type in United States National Museum.

Myotis altifrons Hollister.

Myotis altifrons Hollister, Smith. Misc. Coll., LVI, 1911, p. 3.

Type locality. Henry House, Alberta, Canada.

Genl. Char. Similar to *M. lucifugus* but foot larger.

Color. Upperparts bistre, underparts dark Isabella color; ears and membranes blackish. Ex type in United States National Museum.

Measurements. Total length, 92; tail, 39; foot, 11; forearm, 37; ear, 12.5; tragus, 7.6; tibia, 16.7. Skull: Occipito-nasal length, 12.8;

Hensel, 10.5; zygomatic width, 8.5; interorbital width, 4.1; width of braincase, 8; length of upper tooth row, ex canine, 3.8; length of mandible, 15; length of lower tooth row, ex canine, 5.1. Ex type in United States National Museum.

This form differs from *M. lucifugus* mainly in the skull which is larger and the braincase flattened.

Myotis capitaneus Nelson and Goldman.

Myotis capitaneus Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 28.

Type locality. San Jorge, 30 miles southwest of Comondu, Lower California, Mexico.

Genl. Char. Resembles *M. californicus*, but larger with shorter and more rounded ears; tragus shorter, no notch above lobe at posterior base.

Color. Upperparts brownish cinnamon; head paler; underparts pale ochraceous-buff with a brownish tinge; membranes brown. Ex type in United States National Museum.

Measurements. Total length, 92; tail, 42; forearm, 33.6; tibia 18.9; foot, 7.4; thumb, 5.8. Skull: Occipito-nasal length, 11, Hensel, 9.7; zygomatic width, 7.9; intertemporal width, 3.8; length of upper molar series, 3.9; length of mandible, 7.8; length of lower molar series, 4.6. Ex type in United States National Museum.

Myotis micronyx Nelson and Goldman.

Myotis micronyx Nels. and Goldm., Proc. Biol. Soc. Wash., XXII, 1909, p. 28.

Type locality. Comondu, Lower California, Mexico.

Genl. Char. Like *M. evotus* but smaller.

Color. Upperparts and middle of face light golden-cinnamon; sides of face covered with dusky hairs; underparts gray with a buff tinge; ears, feet and membranes black. Ex type in United States National Museum.

Measurements. Total length, 90; tail, 42; forearm, 35.8; tibia, 18.2; foot, 7.9; thumb, 5.7; ear, 14.6. Skull: Occipito-nasal length, 4.4; Hensel, 11.4; zygomatic width, 14.3; width of braincase, 7.2; intertemporal width, 3.8; palatal length, 7.3; length of upper molar series, 4.1; length of mandible, 11.2; length of lower molar series, 6. Ex type in United States National Museum.

Myotis winnemana Nelson.

Myotis winnemana Nelson, Proc. Biol. Soc. Wash., XXVI, 1913, p. 183.

Type locality. Plummers Island, Maryland.

Geogr. Distr. Brandon, Vermont, and Plummers Island, Maryland.

Genl. Char. Like *M. lucifugus*, but forearm shorter and muzzle black. Skull small, flattened.

Color. Upperparts dark chestnut-brown, tinged with golden; underparts dull grayish brown; muzzle and sides of head blackish. Ex type in United States National Museum.

Measurements. Total length, 82; tail, 39; hind foot, 8; forearm, 30.5; extent of wing, 225. Skull: Basal length, 10.4; width of braincase, 6.8; zygomatic width, 8.2; intertemporal width, 3.6; length of upper molar series, 4; length of mandible, 9.3; length of lower molar series, 4.3. Ex type in United States National Museum.

Myotis yumanensis (H. Allen).

Vespertilio yumanensis H. Allen, Mon. N. Am. Bats, 1864, p. 58; Elliot, Check-List Mamm. N. Am. Con. and West Indies, F. C. M. Pub. VI, 1905, p. 475.

Vespertilio obscurus H. Allen, Proc. Acad. N. S. Phila., 1866, p. 231.

Type locality. Fort Yuma, San Diego County, California.

In North American Fauna, No. 13, 1897, p. 69 Mr. G. S. Miller Jr., assigned *Vespertilio obscurus* H. Allen to the synonymy of *Myotis californicus* Aud. and Bach., and it has remained there ever since. The specimen was in alcohol and lately by the removal of the skull, Mr. E. A. Goldman (Proc. Biol. Soc. Wash., XXVII, 1914, p. 102) states that on comparison with the skull of *M. yumanensis* they prove to be specifically identical and therefore in future the position of *V. obscurus* H. Allen, will be given as above.

Genus Pizonyx.

Pizonyx Miller, Proc. Biol. Soc. Wash., XIX, 1906, p. 85.

A genus created for the single species *Myotis vivesi* Menegaux. No. 1148, Check-List.

Characters. "Like *Myotis* but with foot (claws included) as long as tibia, the toes and claws so greatly compressed that width of claw is only about one-eighth the height at base; wing with large glandular mass near middle of forearm."

Type. *Myotis vivesi* Menegaux, the only known species.

Genus. Eptesicus.

Eptesicus fuscus pallidus Young.

Eptesicus pallidus Young, Proc. Acad. Nat. Sci. Phila., 1908, p. 408.

Type locality. Boulder, Boulder County, Colorado.

Genus Bæodon.

Bæodon alleni (Thomas).

Rhogeëssa alleni Thomas, see Elliot, Check-List Mamm. N. Am. Cont. and West Indies, F. C. M. Pub., VI, 1905, p. 489.

Bæodon Miller, Proc. Biol. Soc. Wash., XIX, 1906, p. 85.

Genus created for *Rhogeëssa* (!) *alleni* Thomas, No. 1176, Check-List.

"Like *Rhogeëssa* (!) but with reduction of outer lower incisor carried so far that the tooth has become a mere functionless spicule less than one-twentieth as large as first or second incisor, nearly concealed beneath cingulum of canine."

Bæodon alleni is the only known species.

Family [1] Emballonuridæ.

Subfamily Emballonurinæ.

Genus Saccopteryx (167).

Saccopteryx bilineata centralis Thomas.

Saccopteryx bilineata centralis Thos., Ann. and Mag. Nat. Hist. Ser. 7, XIII, 1904, p. 251.

Type locality. Teapa, State of Tabasco, Mexico.

Geogr. Distr. Southern Mexico to Costa Rica.

Genl. Char. Like *S. bilineata* but smaller.

Color. Like *S. bilineata.*

Measurements. Total length, 64; tail, 14; leg and foot, 30.5; calcar, 18.5; forearm, 47. Skull: Greatest length, 15.6; basal length, 12; greatest breadth, 10.4; interorbital breadth, 4.2; breadth of braincase, 8; palatal length, 5.4; length of upper tooth row, including canine, 6.5; lower tooth row, 6.8.

Genus Rhynchiscus.

Rhynchiscus Miller, Proc. Biol. Soc. Wash., XX, 1907, p. 65.

Proposed in place of *Rhynchonycteris* Peters, 1867, nec *Rhinchonycteris* (!) Tschudi, 1844–45. Type *Vespertilio naso* Wied.

[1] For including *Saccopteryx*, *Rhynchiscus* and *Balantiopteryx* in this family, see Miller, Bull. U. S. Nat. Mus., No. 57, 1907, pp. 85, 86, 87, 89, 92.

Rhynchiscus naso (Wied), see Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1181, p. 492.

Rhynchiscus naso priscus G. M. Allen.

Rhynchiscus naso priscus G. M. Allen, Proc. Biol. Soc. Wash., XXVII, 1914, p. 109.

Type locality. Xcopen, Quintana Roo, southern Mexico.

Genl. Char. Similar to *R. naso*, but shorter forearm; smaller skull, with a conspicuous cingulum cusp anteriorly and posteriorly on anterior upper premolar.

Color. Top and sides of head and upperparts of body mixed black and mummy-brown, hairs tipped with white; these forming a broken whitish band on lower back; underparts dull whitish, washed with buffy on the belly, hairs slaty at their base; a patch of white at the base of forearm internally; femora, tibiæ, free portion of the tail and proximal half of the interfemoral membrane amber-brown; on forearm externally on border of proximal third is a rusty line, beyond which are four small whitish and buff tufts. A small whitish tuft at base of each ear. Type in Museum of Comparative Zoölogy, Cambridge, Mass.

Measurements. Forearm, 38.5. Skull: Greatest length, 12; zygomatic width, 7.2; intertemporal width, 2.3; mastoid width, 6.5; length of upper tooth row, 4.6; length of mandible, ; length of lower tooth row, 4.8. Type in Museum of Comparative Zoölogy, Cambridge, Mass.

Genus Balantiopteryx. (168).

Balantiopteryx io Thomas.

Balantiopteryx io Thos., Ann. and Mag. Nat. Hist., 7th Ser., XIII, 1904, p. 252.

Type locality. River Dolores, near Coban, Guatemala. Type in British Museum.

Genl. Char. Size very small; tragus slender, tip rounded; lobule opposite base of inner margin, and another higher up. Wing-sacs in center of membrane; wings attached to distal end of tibia; calcar slender, not reaching the knee; base of interfemoral membrane hairy.

Color. Above and beneath, and membranes, dark brown; no white edgings to wings.

Measurements. Total length, 52; tail, 12; ear, 12; tragus, 3; thumb, 5.6; third finger, metacarpal, 31.5; fifth finger, metacarpal, 36; tibia, 14; leg and foot, 22; calcar, 10.5. Skull: Greatest length, 12.3; basal length, 8.7; zygomatic breadth, 8.8; across muzzle, 6; mastoid breadth, 7.6; palatal length, 3.3.

Genus Peropteryx.

Peropteryx canina phæa G. M. Allen.

Peropteryx canina phæa G. M. Allen, Bull. Mus. Comp. Zool., LIV, 1911, p. 222.

Type locality. Point Saline, Grenada, Lesser Antilles.

Genus. Centronycteris.

Centronycteris centralis Thomas.

Centronycteris centralis Thos., Ann. and Mag. Nat. Hist., Ser, 8, X, 1912, p. 638.

Type locality. Bogava, Chiriqui, Panama.

Family **Noctilionidæ.**

Genus Dirias.

Dirias Miller, Proc. Biol. Soc. Wash., XIX, 1904, p. 84. Type *Noctilio albiventer* Spix.

Dirias minor Osgood.

Dirias minor Osgood, Field Mus. Nat. Hist. Pub., 149, X, 1910, p. 30; Nelson, Proc. Biol. Soc. Wash., XXV, 1912, p. 93.

Type locality. Encontrados, Zulia, Venezuela. Ranges to Panama, having been taken at Empire, Canal Zone, Feb. 16, 1912.

Genl. Char. Allied to *D. albiventer* but smaller.

Color. Alcoholic. Upperparts pale Prout's-brown; a whitish median line from interscapular region to tail; underparts tawny olive; membrane pale Prout's brown. Ex type in Field Museum of Natural History.

Measurements. Total length, 79; tail, 12; ear, 20.5; forearm, 58.4; thumb, 10; tibia, 21.5; calcar, 30.5; foot and claws, 15.6. Skull: Total length, 18.5; zygomatic width, 14.6; intertemporal width, 5.6; length of upper molar series, 6; length of mandible, 12.7; length of lower molar series, 6.8. Ex type in Field Museum of Natural History.

Family **Molossidæ.**

Genus Molossus (172).

Molossus sinaloæ Allen.

Molossus sinaloæ Allen, Bull. Am. Mus. Nat. Hist., XXII, 1906, p. 236.

Type locality. Escuinapa, Sinaloa, Mexico.

Color. Entire upperparts dull brown, approaching mummy-brown; underparts buffy brown; membranes and ears dark brown. Ex type in American Museum of Natural History.

Measurements. Total length, 108; tail, 38; forearm, 43.3; finger, 84; thumb, 6; foot, 16. Skull: Total length, 20; Hensel, 14.2; occipito-nasal, 16.4; zygomatic width, 12; intertemporal width, 4; width of braincase, 10; length of upper molar series, 6.6; length of mandible, 13.1; length of lower molar series, 6.7. Ex type in American Museum of Natural History.

Molossus verrilli Allen.

Molossus verrilli Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 581.

Type locality. Samana, San Domingo.

Color. Upperpart sepia; underparts paler; membranes and ears blackish. Ex type in American Museum of Natural History.

Measurements. Total length, 85; tail, 25 (skin); forearm, 40; 3d metacarpal 41. Skull: Total length, 16.7; Hensel (broken); zygomatic width, 10; width of braincase, 8.8; length of upper molar series, 4.6; length of mandible, 11; length of lower molar series, 5.2. Ex type in American Museum of Natural History.

Molossus debilis Miller.

Molossus debilis Miller, Proc. U. S. Nat. Mus., 46, 1913, p. 90.

Type locality. St. Kitts, Lesser Antilles.

Measurements. Skull: Total length, 15; occipito-nasal length, 13.2; zygomatic width, 8; intertemporal width, 3.2; length of upper molar series, 4.4; length of mandible, 10.4; length of lower molar series, 5. Ex type in United States National Museum.

Molossus fortis Miller.

Molossus fortis Miller, Proc. U. S. Nat. Mus., 46, 1913, p. 89.

Type locality. Luquillo, Porto Rico.

Measurements. Skull: Total length, 17; occipito-nasal length, 14.8; Hensel, 13.2; zygomatic width,——; intertemporal width,——; length of upper molar series, 4.9; length of mandible, 12.7; length of lower molar series, 3.8. Ex type in United States National Museum.

Genus Molossops Peters.

Molossops Peters, Monatsb. K. Preuss. Akad. Wiss. Berlin, 1865, p. 575. Type *Molossus temminckii* Burmeister.

Molossops planirostris (Peters).

Molossus planirostris Peters, Monatsb. K. Preuss. Akad. Wiss. Berlin, 1865, p. 575.

Type locality. British Guiana.

Geogr. Distr. British Guiana north to Panama.

Genus Mormopterus.

Mormopterus Peters, Monatsb. K. Preuss. Akad. Wiss. Berlin, 1865, p. 258. Type *Nyctinomus jugularis* Peters.

Mormopterus minutus (Miller).

Nyctinomus minutus Miller, see Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, p. 500.

Eight species are recognized in this genus, but the one described by Miller as cited is the only representative in North America, and until transferred by Miller (Bull. U. S. Nat. Mus., 1907, p. 253) was always included in *Nyctinomus*.

Genus Eumops.

Eumops Miller, Proc. Biol. Soc. Wash., XIX, 1906, p. 85. Type *Molossus californicus* Merriam.

Genus created to contain the following species of the North American Fauna.

Dysopes abrasus Temm., Mon. Mamm., I, 1827, p. 232; Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1193, p. 497.

Dysopes glaucinus Wagner, Archiv. für Nat., Pt. 1, 1843, p. 368; Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1195, p. 497.

Molossus californicus Merriam, N. Am. Fauna, 1890, p. 31; Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1197, p. 498.

Promops nanus Miller, Ann. and Mag. Nat. Hist. VI, 7th Ser., 1900, p. 470; Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1196, p. 498.

Nyctinomus orthotis H. Allen, Proc. Am. Phil. Soc., XXVI, 1889, p. 561; Elliot, Check-List Mamm. N. Am. Cont. and West Indies, 1905, No. 1194, p. 497.

Characters. "Like *Molossus* but skull slender, with hour-glass shaped or nearly cylindrical interorbital region and no distinct sagittal crest; palate slightly arched but not domed; upper incisor with slender, curved shaft higher than length of crown; lower incisors 2–2; upper premolars, 2–2, the small tooth (pm^2) normally well formed and not deciduous; first and second upper molars with well developed hypocone." (Miller, *l. c.*).

Species: *E. abrasus* (Temminck); *E. californicus* (Merriam); *E. nanus* (Miller); *E. glaucinus* (Wagner); *E. orthotis* (Allen), all North American; *E. maurus* (Thomas); *E. perotis* (Wied), and *E. trumbulli* (Thomas) ex South America.

Family **Phyllostomidæ.**

Subfamily **Chilonycterinæ.**

Genus Chilonycteris.

Chilonycteris parnellii (Gray).

Phyllodia parnellii Gray, Proc. Zool. Soc. Lond., 1843, p. 50.

Type locality. Island of Jamaica, West Indies.

Subfamily **Phyllostominæ.**

Genus Xenoctenes.

Xenoctenes Miller, Fam. and Gen. of Bats, 1907, p. 124. Type *Schistoma hirsutum* Peters.

A new genus proposed by Miller for Peters's species given above, the only member of the genus known.

"Externally similar to *Micronycteris*, but with connecting band of ears very low. Skull and teeth as in *Micronycteris*, except that the incisors both above and below are notably peculiar."

Genus Dolichophyllum.

Macrophyllum Gray, in Jard., Mag. Zool. and Bot., II, 1838, p. 489 (nec Hope, Coleopt. 1837).

Dolichophyllum Lydekker, Flower and Lydekker, Mamm. Living and Extinct, 1891, p. 673. Type *Macrophyllum neuwiedii* Gray.

Dolichophyllum macrophyllum (Wied).

Phyllostoma macrophyllum Wied, Beitr. zur Naturg. Bras. II, 1825, p. 188.

Macrophyllum macrophyllum Nelson, Proc. Biol. Soc. Wash., XXV, 1912, p. 93.

Type locality. Mucurè River, Minas Geraes, Brazil (Ranges to Panama).

Genus Mimon.

Mimon Gray, Proc. Zool. Soc. Lond., 1847, p. 14.

This genus is accepted by Miller (List of N. Am. Land Mammals in U. S. Nat. Mus., Bull. Smith. Inst., No. 79, 1912, p. 37), for *Phyllostoma bennettii* Gray, its only known species.

This species of Gray does not, however, come within the boundaries of North America, but is apparently restricted to Brazil, an assumed typical example having been procured at Ypanema, São Paulo, Brazil (see Goldman, Proc. Biol. Soc. Wash., XXVII, 1914, p. 75). The genus, however, is represented in North America by the following species:

Mimon cozumelæ Goldman.

Mimon cozumelæ Goldm., Proc. Biol. Soc. Wash., XXVII, 1914, p. 75.

Type locality. Cozumel Island, east coast of Yucatan, Mexico.

Genl. Char. Similar to *M. bennettii* but paler; skull smaller.

Color. Head and upperparts sayal-brown; underparts wood-brown; outer side of forearm covered with sayal-brown fur. Type in United States National Museum.

Measurements. Length of forearm, 58; tibia, 22.3; foot, 14.9. Skull: Broader and more massive than *M. bennettii*; greatest length, 26; zygomatic width, 14.3; width of palate, behind last molars, 2.8. Type in United States National Museum.

Genus Chrotopterus (186).

Chrotopterus auritus (Peters).

Vampyrus auritus Peters, Monatsb. K. Preuss. Akad. Wiss. Berlin, 1856, p. 415, pl. 11, figs. 1–5.

Peters's Vampire Bat.

Type locality. Mexico.

Geogr. Distr. Mexico to Brazil.

Genl. Char. Smaller than *C. spectrum;* ears large; outer incisors very small; lower incisors chisel-shape, indistinctly notched; first and second upper premolar very small.

Color. Above, hairs dark brown at their bases, and whitish at their tips; beneath grayish brown, the hairs darkest in the middle.

Measurements. Total length, 106.6; ear, 40.6; tragus, 11.4; nose-leaf, 16.4; forearm, 85; tibia, 36.2; foot, 25.

Genus Phyllostoma (191).

Phyllostoma verrucossum Elliot.

Phyllostoma verrucossum Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 236.

Type locality. Niltepec, State of Oaxaca, Mexico.

Geogr. Distr.

Genl. Char. Size small: V-shaped groove on lower lip margined with eleven to thirteen warts; ears as in the genus; calcar shorter than foot. Skull compared with that of *P. hastatum* is relatively broader interorbitally and the rostrum narrower anteriorly, while the upper occipital outline is continuous.

Color. Fore part of head above and face from ears to end of nose dark fawn becoming brownish around eyes; band from behind ears and over the center of the back dark russet; back of head and nape very dark mummy-brown; chin, throat and breast whitish buff; rest of underparts olive-gray with a pinkish tinge on the sides; ears, membranes, feet and tail, blackish brown. In some specimens the throat is ochraceous-buff. Ex type in Field Museum of Natural History.

Measurements. Total length, 105; tail vertebræ, 15; foot, 17.5; ear, 20; forearm, 52.25. Skull: Total length, 32; Hensel, 22; zygomatic width, 17; palatal length, 13; length of nasals, 4; length of upper molar series, 7; length of mandible, 20; length of lower molar series, 9. Ex type in Field Museum of Natural History.

Subfamily **Hemiderminæ.**

Genus Hemiderma.

Hemiderma subrufum Hahn.

Hemiderma subrufum Hahn, Proc. Biol. Soc. Wash., XVIII, 1905, p. 247.

Type locality. Southern Mexico.

Genl. Char. Size small; skull short with a high, rounded braincase; teeth small, tooth rows divergent.

Color. Uniform dark reddish brown on entire upperparts, hairs whitish at base, then a buffy whitish band followed by a reddish Prout's-brown one and tips whitish; underparts similar but duller; membranes brownish, the interfemoral membrane sparsely furred at base. Ex type in United States National Museum.

Measurements. Forearm, 39; hind foot, 13; calcar, 7; ear from base, 16; length of middle finger, 30.9. Skull: Occipito-nasal length, 19.6; Hensel, 13.3; zygomatic width, 11.6; intertemporal width, 5; length of upper tooth row, 7; length of mandible, 13.7; length of lower tooth row, 7.4. Ex type in United States National Museum.

Subfamily **Glossophaginæ.**

Genus Glossophaga (193).

Glossophaga longirostris rostrata Miller.

Glossophaga rostrata Miller, Proc. Biol. Soc. Wash., XXVI, 1913, p. 32 (July).

Glossophaga longirostris rostrata Miller, Proc. U. S. Nat. Mus., 46, 1913, p. 423 (December).

Type locality. Westerhall estate, Grenada, Lesser Antilles.

Genl. Char. Resembles *G. longirostris* Miller but less dark; teeth different, m^1 and m^2 with deeper emargination, causing a sharper definition of the posterior-external prolongation of the crown, making the general outline, bounded on outer side by paracone and point of metacone, and on inner side by protocone and its commissure, almost square.

Color. Upperparts rood's-brown; base of fur white; beneath paler; membrane pale, almost a whitish brown where extended; feet blackish, ears pale rood's-brown. Ex type in United States National Museum.

Measurements. Forearm, 37.4; thumb, 9.6; third finger, 82; tibia, 15; fifth finger, 53; foot, 10.6. Skull: Occipito-nasal length, 21; Hensel, 18.2; zygomatic width, 10; intertemporal width, 4.8; mastoid breadth, 9.6; width of braincase, 9; length of upper molar series, 6.5; length of mandible, 14.8; length of lower molar series, 7.6. Ex type in United States National Museum.

Glossophaga soricina leachii (Gray).

Monophyllus leachii Gray, Voy. Sulphur, I, 1844, p. 18.

Glossophaga leachii Miller, Proc. U. S. Nat. Mus., 46, 1913, p. 419.

Type locality. Realejo, Nicaragua.

Geogr. Distr. Central Mexico to Panama.

Genl. Char. Like *G. soricina*, but skull longer.

Color. Like that of *G. soricina.*

[1] *Measurements.* Total length, 54, Tepic, Mexico to 62, Panama; tail, 6–11; tibia, 13.4–15.6; foot, 8.4–11.4; forearm, 33–37.6; third finger, 70.76; ear, 14–15.4; Skull: Condylo-basal length, 19.8–21; breadth of rostrum, 4.2–5; breadth of braincase, 8.6–9; length of mandible, 13.4–14.6; length of upper tooth row, 7–7.8; length of lower tooth row, 7.6–8.2.

This form was placed among the synonyms of *G. soricina* in the Check-List; Miller, however, in a later paper (*l. c.*) has raised it to subspecific rank, based solely on the somewhat longer skull.

Genus Lonchophylla.

Lonchophylla Thomas, Ann. and Mag. Nat. Hist., Ser. 7, XII, 1903, p. 458. Type *Lonchophylla mordax* Thomas.

Lonchophylla robusta Miller.

Lonchophylla robusta Miller, Proc. U. S. Nat. Mus., LXII, 1912, p. 23.

Type locality. Cave on Chilibrillo River, Panama.

Lonchophylla concava Goldman.

Lonchophylla concava Goldm., Smith. Misc. Coll., LXIII, 1914, p. 2.

Type locality. Cana, eastern Panama. Altitude 2000 feet.

Genl. Char. Darker than *L. mordax*, and cranial characters different. Braincase larger; angle of mandible longer; incisors larger; second upper premolar narrower, internal lobe reduced; crows of molar more quadrate.

[1] From Miller's Revision of the Genus *Glossophaga.*

Color. Upperparts warm sepia; underparts paler; membranes black. Ex type in United States National Museum.

Measurements. Total length, 68; tail, 10; tibia, 12.7; foot, 11; forearm, 33.9. Skull: Greatest length, 23.4; Hensel, 19.5; intertemporal width, 4.6; palatal length, 12; length of nasals, 5.7; length of upper molar series, 6.3; length of mandible, 16.8; length of lower molar series, 7.1. Ex type in United States National Museum.

Genus Chæronycteris.

Chæronycteris godmani Thomas.

Chæronycteris godmani Thos., Ann. and Mag. Nat. Hist., 7th Ser., XI, 1903, p. 288.

Type locality. Guatemala.

Subfamily **Sternoderminæ.**

Genus Brachyphylla (202).

Brachyphylla minor Miller.

Brachyphylla minor Miller, Proc. Biol. Soc. Wash., XXVI, 1913, p. 32.

Type locality. Coles Cave, St. Thomas Parish, Barbados, Lesser Antilles.

Genl. Char. Like *B. cavernarum* Gray, but skull smaller and area of cheek-teeth reduced.

Color.

Measurements. Length of head and body, 78; forearm, 61.5; thumb, 15; third finger, 105; fifth finger, 80; tibia, 25; foot, 17. Skull: Occipito-nasal length, 26.2; Hensel, 22; zygomatic width, 16; intertemporal width, 6.2; breadth of braincase, 12; length of upper molar series, 8.4; length of mandible, 19.8; length of lower molar series, 9.6. Ex type in United States National Museum.

Genus Artibeus (203).

Artibeus jamaicensis richardsoni Allen.

Artibeus jamaicensis richardsoni Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 669.

Type locality. Matagalpa, Nicaragua.

Color. Above on entire upperparts Prout's-brown; beneath grayish brown; membranes dark brown. Ex type in American Museum of Natural History.

Measurements. Total length, 87 (skin); forearm, 53.3; metacarpal, 50; tibia, 20. Skull: Total length, 29; Hensel, 21.6; zygomatic width, 17; intertemporal width, 7.4; length of nasals, 5.3; mastoid width, 15; length of upper molar series, 8.7; length of mandible, 18.7; length of lower molar series, 9.3. Ex type in American Museum of Natural History.

Artibeus jamaicensis præceps Andersen.

Artibeus jamaicensis præceps Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 421.

Type locality. Guadeloupe Island, Lesser Antilles.

Geogr. Dist. Islands of Guadeloupe and Dominica.

Artibeus aztecus Andersen.

Artibeus aztecus Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 422.

Type locality. Tetela del Volcan, State of Morelos, Mexico.

Color. Head and upperparts blackish brown; beneath olive-brown, feet dark brown; ears and membranes blackish. Ex type in United States National Museum.

Measurements. Skull: Total length, 22.3; occipito-nasal length, 19.8; palatal length, 10.1; length of upper molar series, 6.3; length of mandible, 14.1; length of lower molar series, 6.2. Ex type in United States National Museum.

Artibeus turpis Andersen.

Artibeus turpis Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 422.

Type locality. Teapa, Tabasco, Mexico.

Artibeus nanus Andersen.

Artibeus nanus Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 423.

Type locality. Tierra Colorado, Sierra Madre de Sur, Guerrero, Mexico.

Geogr. Distr. Guerrero north of Sinaloa.

Artibeus planirostris grenadensis Andersen.

Artibeus planirostris grenadensis Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 420.

Type locality. Grenada, Lesser Antilles.

Artibeus hirsutus Andersen.

Artibeus hirsutus Andersen, Ann. and Mag. Nat. Hist., 7th Ser., XVIII, 1906, p. 420.

Type locality. La Salada, State of Michoacan, Mexico.

Geogr. Distr. States of Michoacan, Colima, and Jalisco, Mexico.

Color. Top of head and back sepial sides of neck pale buffy brown; underparts ashy; legs and feet pale brown. Ex type in United States National Museum.

Measurements. Skull: Total length, 26.8; occipito-nasal length, 23.9; zygomatic width, 16.7; intertemporal width, 7.2; length of upper molar series, 8.6; length of mandible, 17.3; length of lower molar series, 8.5. Ex type in United States National Museum.

[1] Genus Vampyrodes.

Vampyrodes Thomas, Ann. and Mag. Nat. Hist., 7th Ser., V, 1900, p. 270. Type *Vampyrodes caracciolæ.*

Vampyrodes major G. M. Allen.

Vampyrodes major G. M. Allen, Bull. Mus. Comp. Zool., LII, 1908, p. 38.

Type locality. San Pablo, Panama.

Genus [2] Vampyressa.

Vampyressa Thomas, Ann. and Mag. Nat. Hist., 7th Ser., V, 1900, p. 270. Type *Phyllostoma pusillum* Wagner.

Vampyressa minuta Miller.

Vampyressa minuta Miller, Proc. U. S. Nat. Mus., 42, 1912, p. 25.

Type locality. Cabima, Panama.

Genl. Char. Smaller than *V. pusilla* Peters; teeth peculiar, last upper premolar with postero-external cusp less developed; first upper molar with longitudinal diameter through protocone about equal to length of outer border.

Color. General character of body above and beneath écru-drab, washed with broccoli-brown on upperparts; face markings indistinct. Ex type in United States National Museum.

Measurements. Total length, 44; tibia, 11; foot, 7.5; forearm,

[1] Placed as a synonym of *Vampyrops* in Check-List, p. 525.
[2] Placed as a synonym of *Vampyrops* in Check-List, p. 525.

31.5; third finger, 70; fifth finger, 46; ear from meatus, 12. Skull: Occipito-nasal length, 18; Hensel, 13.1; zygomatic width, 10: intertemporal width, 9.2; width of braincase, 8; length of upper tooth row, 5.6; length of mandible, 11.2; length of lower tooth row, 6. Ex type in United States National Museum.

Genus Chiroderma (210).

Chiroderma isthmicum Miller.

Chiroderma isthmicum Miller, Proc. U. S. Nat. Mus., 42, 1912, p. 25.

Type locality. Cabima, Panama.

Genl. Char. Similar to *C. villosum* Peters; ear narrower with medium stripe; skull shorter and wider.

Color. Upperparts Isabella color; hairs broccoli-brown on basal third, remainder light gray washed with ochraceous-buff, and tips brown; an inconspicuous white dorsal line; underparts écru-drab variegated with brown spots and subterminal rings. Ex type in United States National Museum.

Measurements. Total length, 65; tibia, 17; foot, 10.4; forearm, 45; thumb, 10.5; longest finger, 99; fifth finger, 70; ear from meatus 18. Skull: Occipito-nasal length, 24.6; zygomatic width, 15.6; intertemporal width, 6.2; width of braincase, 10.4; length of upper molar series, 8.8; length of mandible, 8.8; length of lower tooth row, 9.2. Ex type in United States National Museum.

Genus Ardops.

Ardops Miller, Proc. Biol. Soc. Wash., XIX, 1906, p. 84. Type *Stenoderma nichollsi* Thomas.

Ardops haitiensis Allen, Bull. Am. Mus. Nat. Hist., XXIV, 1908, p. 581.

Type locality. Cana Honda, San Domingo.

Color. Entire upperparts grayish brown; underparts whitish brown; membranes dark brown. Ex type in American Museum of Natural History.

Measurements. Total length, 54.5; forearm, 39; second finger, 34; third finger, 80; thumb, 12; tibia, 15.5. Skull: Total length, 19; Hensel, 13.6; intertemporal width, 5.4; length of upper molar series,

4.6; length of mandible, 10.8; length of lower molar series, 5.2. Ex type in American Museum of Natural History.

Ardops annectens Miller.

Ardops annectens Miller, Proc. Soc. Wash., XXVI, 1913, p. 33.

Type locality. Island of Guadaloupe, Lesser Antilles.

Genl. Char. Intermediate in size between *A. montserratensis* Thomas and *A. luciæ* Miller.

Measurements. Length of head and body, 68; forearm, 48.6; thumb, 15.4; third finger, 114; fifth finger, 78; tibia, 20; foot, 14.6; ear from meatus, 18. Skull: Occipito-nasal length, 22; Hensel, 16.9; zygomatic width, 15.4; intertemporal width, 6.1; mastoid width, 13.2; length of upper molar series, 6.1; length of mandible, 14.6; length of lower molar series, 6.7. Ex type in United States National Museum.

Genus Ariteus Gray.

Ariteus Gray, Mag. Zool. Bot., II, 1838, p. 491. Type *Istiophorus flavescens* Gray.

Ariteus flavescens (Gray).

Istiophorus flavescens Gray, Zool. Misc., 1831, p. 37.

Ariteus flavescens Gray, Mag. Zool. Bot., II, 1838, p. 491.

Artibeus achradophilus Gosse, Nat. Sojourn in Jamaica, 1851, p. 271, pl. vi.

Stenoderma achradophilum Elliot, Mamm. Middle Am. and W. Indies, F. C. M. Pub., IV, Pt. II, 1904, p. 707, fig. 156, Zool. Ser.; *Id.* Check-List Mamm. N. Am. Cont. and West Indies, F. C. M. Pub., 1905, p. 527, Zool. Ser.

Ariteus Gray, takes precedence for this species over *Stenoderma* Geoffroy, which is now considered to be represented only by the type *S. rufum* Geoffroy. The species included in the genus *Stenoderma* in the Check-List are now placed in the following genera: *S. acradophyllum* in *Ariteus* as a synonym of *A. flavescens* Gray as given above, *luciæ, nichollsi* and *montserratensis* in *Ardops*, and *tolteca* [1] in *Artibeus*; leaving only *rufum* to represent *Stenoderma*.

[1] This in the Check-List was made a synonym of *Dermanura cinereum* Gervais.

Subfamily **Phyllonycterinæ.**

Genus Erophylla.

Erophylla Miller, Proc. Biol. Soc. Wash., XIX, 1906, p. 84. Type *Phyllonycteris bombifrons* Miller.

Genl. Char. "Like *Phyllonycteris* but interfemoral membrane extending to short, though evident, calcar; noseleaf with pointed, median projection; zygomatic arches complete; and lower molars with distinct cutting edge."

The species included in this genus by Miller are *E. bombifrons* (Miller), *E. planifrons* (Miller), *E. santa-cristobalensis* (Elliot) and *E. sezekorni* (Gundlach).

Erophylla santa-cristobalensis (Elliot).

Phyllonycteris santa-cristobalensis Elliot, Proc. Biol. Soc. Wash., XVIII, 1905, p. 236.

Type locality. San Cristobal, San Domingo, W. I.

Geogr. Distr. Known only from type-locality.

Genl. Char. Ear long, rather narrow, tip rounded; tragus broad, with elongated acute tip; nose-leaf small separated from ridge behind by a deep groove; wings from above ankle; toes very long. Skull with elevated, arched braincase, high above rostrum; the latter broad, swollen; zygomatic arch complete; canines rather large, molars small; palate broad.

Color. Above Vandyke-brown at tips, rest of hairs white; beneath pinkish buff; ears brown; wings black. Ex type in Field Museum of Natural History.

Measurements. Total length, nose to end of foot, 89; forearm, 45; thumb, 13; fifth finger, 57; tibia, 20; foot, 14.5 (skin). Skull: Occipito-nasal length, 21; total length, 23; zygomatic width, 11; height of braincase, 10; length of nasals, 7; width of rostrum, 5; palatal length, 10; width of palate, 4; length of upper molar series, 7; length of mandible, 15.

Order **Primates.**

Family **Cebidæ. Prehensile-tailed Monkeys.**

Subfamily **Alouattinæ.**

Genus Alouatta (217).

Alouatta palliata inconsonans Goldman.

Alouatta palliata inconsonans Goldm., Smith. Misc. Coll., LX, 1913, No. 22, p. 17.

Type locality. Cerro Azul, near the headwaters of the Chagres River, Panama. Altitude 2500 feet.

Genl. Char. Similar to *Alouatta palliata* but blacker, and with less rufous on upperparts; skull with braincase broader, flatter bullæ and narrower premolars.

Color. Upperparts black; dorsum black mixed finely with buff; chin and limbs black; underparts thinly haired, black; long hairs from flanks brownish ochraceous; tail black. Ex type in United States National Museum.

Measurements. Total length, 1.272; tail, 715; foot, 143. Skull: Greatest length, 123.5; Hensel, 94.6; zygomatic width, 87.2; intertemporal width, 12.2; length of nasals, 21.8; palatal length, 46.8; length of upper molar series, 32.2; length of mandible, 76; length of lower molar series, 40; width of third upper premolar (crown), 7.7. Ex type in United States National Museum.

Subfamily **Aotinæ.**

Genus Aotus (218).

Aotus zonalis Goldman.

Aotus zonalis Goldm., Smith. Misc. Coll., LXIII, 1914, p. 6.

Type locality. Gatun, Canal Zone, Panama. Altitude 100 feet.

Genl. Char. Like *A. griseimembra* but not so gray; more buffy, carnail and dental characters different. Skull with broader braincase; intertemporal region more depressed; zygomatic arch heavier; bullæ less inflated; mandible and teeth heavier.

Color. Upperparts and limbs wood-brown, suffused with buffy,

the median dorsal region overlaid with russet and black; a median black line from between eyes to crown; narrow black lateral lines to occiput; white spots above eyes; sides of neck grayish; underparts pale ochraceous-buff; tail like upperparts above at base, root black; beneath chestnut on proximal third, remainder black; hands and feet black. Ex type in United States National Museum.

Measurements. Total length, 683; tail, 400; foot, 90. Skull: Greatest length, 60.9; Hensel, 39.8; zygomatic breadth, 37.5; intertemporal width, 5.2; mastoid width., 33.8; length of nasals, 10; palatal length, 31.5; length of upper molar series, 14.8; length of mandible, 37.3; length of lower molar series, 15.8. Ex type in United States National Museum.

Subfamily **Cebinæ.**

Genus Ateleus.

Ateleus pan Schlegel.

Ateles (!) *pan* Schlegel, Mus. Hist. Nat. Pays-Bas (*Simiæ*) 7, 1876, p. 180.

Ateleus pan Elliot, Rev. Primates, II, 1913, p. 41.

Schlegel's Spider Monkey.

Type locality. Coban, Guatemala.

Geogr. Distr. Volcano of Orizaba, State of Vera Cruz, into Guatemala.

Genl. Char. Similar to *A. belzebuth*, but the yellowish white on inner side of arms and legs very restricted; no white on the cheeks.

Color. Face black; head, shoulders, arms, hands, legs and feet black or blackish brown; rump brown, hairs tipped with shining golden; underparts yellow; reddish line on border of flanks; inner side of arms to elbows and legs to ankles yellowish white; tail brownish black. Ex type in Leyden Museum.

Measurements. Total length, 1.120; tail, 700; foot, 150. Skull: Total length, 1.022; interorbital width, 57.1; occipito-nasal length, 99.3; Hensel, 66; zygomatic width, 63.5; median length of nasals, 15.4; palatal length, 27.6; length of upper molar series, 24.3; length of mandible, 60; length of lower molar series, 27.4. Ex type in Leyden Museum.

Ateleus tricolor Hollister.

Ateles (*!*) *tricolor* Hollister, Proc. Biol. Soc. Wash., XXVII, 1914, p. 141.

Type locality. Santa Efigenia, State of Oaxaca, Mexico.

Genl. Char. Differs from *A. pan*, in its lighter upper back and shoulders; in the yellowish buff rump and flanks, buffy throat, and yellowish buff stripe on under side of tail. Skull like *A. pan;* upper and middle incisor teeth larger.

Color. Forehead, crown and nape black; sides of head mixed buff and black; upperpart of back with long hairs dark bistre; lower back, rump, flanks and hips yellowish buff; chin buff and black; throat and underparts pale yellowish buff; upper arms brownish black; forearms black; outer side of thighs clay-color, passing through brow to black above knee; rest of leg to foot black; inner side of legs yellowish buff; tail above at base blackish brown becoming black at tip, beneath a stripe of yellowish buff from root for one-third the length, rest black; hands and feet black. Type in United States National Museum.

Measurements. Total length, 1150; tail, 710. Skull: Total length, 109; occipito-nasal length, 95.6; zygomatic width, 64.1; palatal length, 31.9; breadth of braincase, 54.8; length of upper molar series, 25.4; length of mandible, 63.4; length of lower molar series, 27.2. Type in United States National Museum.

Genus Saimiri (219).

Saimiri œrstedi citrinellus Thomas = **S. œrstedi.**

Saimiri œrstedi citrinellus Thos., Ann. and Mag. Nat. Hist., 7th Ser., XIII, 1904, p. 250.

Type locality. Pozo Azul, Pirris, Costa Rica.

Genl. Char. Head less blackened, limbs less yellow.

Color. Back orange; shoulder blades grayish; belly yellowish white; groin and inner side of thighs whitish; crown of head gray with tips of hairs blackish; arms to wrists, and legs from thighs grizzled grayish tinged with yellowish; hands paler orange than in *S. œrstedi;* feet edged with orange, middle of metatarsus grizzled grayish as is also the proximal end of tail.

Measurements. Total length, 765; tail, 415; hind foot, 90. Skull: Greatest length, 651; breadth of braincase, 36.

Genus Cebus (221).

Cebus capucinus limitaneus Hollister.

Cebus capucinus limitaneus Hollister, Proc. Biol. Soc. Wash., XXVII, 1914, p. 105.

Type locality. Segovia River, eastern Honduras.

Color. Crown of head, neck above, entire upperparts of body, forearms, legs and tail black; inner side of legs, and area on knees grizzly; entire rest of head and body, and upper side of arms beyond elbow cream color. Type in United States National Museum.

Measurements. Total length, 830; tail, 400. Skull: Greatest length, 94; zygomatic width, 64.2; Type in United States National Museum.

Family **Lasiopygidæ.**

Subfamily **Lasiopyginæ.**

Genus Lasiopyga.

Lasiopyga mona (Schreber).

Simia mona Schreb., Säugth., I, 1775, p. 97, pl. xv.

Cercopithecus mona Erxl., Syst. Reg. Anim., 1777, p. 30.

Lasiopyga mona Hollister, Proc. Biol. Soc. Wash., XXV, 1912, p. 93; Elliot, Rev. Primates, II, 1913, p. 350, pl. xxxv.

Mona guenon Elliot, Rev. Primates, II, 1913, p. 350.

Type locality. "Barbary."

Geogr. Distr. Island of Grenada, West Indies (introduced); St. Kitts (?); Jebba, River Niger; Bankana, southern Nigeria; Gold Coast to Cameroon, West Africa.

Color. Long, upright white hairs across forehead forming a band extending upward on head; at its base a narrow line of black; top of head speckled yellow and black, this coloring extending downward on to hind neck; entire upperparts and sides of body speckled rusty red and black, darkest on lower back; cheeks and sides of head, hairs long, gray, ringed on apical portion with yellow and black; outer side of arms and hands black; outer side of legs black, speckled with minute red spots; feet black; chin, throat, entire underparts and inner side of limbs grayish white; conspicuous patch beneath tail to hips snow white; tail above, basal third speckled red and black, yellowish gray beneath, remainder black; ear-tufts long, speckled with greenish yellow.

Measurements. Total length, 1.295; tail, 785; foot, 145. Skull: Total length, 93.7; occipito-nasal length, 77.9; intertemporal width, 39.1; Hensel, 60.5; zygomatic width, 59.7; breadth of braincase, 52.7; median length of nasals, 13.6; palatal length, 32.2; length of upper molar series, 23.2; length of mandible, 59.2; length of lower molar series, 30.

Lasiopyga callitrichus (I. Geoffroy).

Simia sabæus (nec Linn., sed Auct.).

Cercopithecus callitrichus I. Geoff., Cat. Primates, 1851, p. 23; Reichenb., Vollständ Naturg. Affen., 1862, p. 115, fig. 288; Schlegel, Mus. Hist. Nat. Pays-Bas (Simiæ), 1876, p. 73; Sclater, Proc. Zool. Soc. Lond., 1893, p. 248; Forbes, Handb. Primates, II, 1894, p. 58.

Cercopithecus sabæus (*nec* Linn.), Pocock, Proc. Zool. Soc. Lond., 1907, p. 726, pl. xlii, fig. 1.

Lasiopyga callitrichus Elliot, Rev. Primates, II, 1913, p. 333, pl. xxxiv (skull).

Green Guenon.

Type locality. Unknown. Type in Paris Museum (?).

Geogr. Distr. Senegambia to the Niger, Yabanda, Congo (Dyboski); West Africa; Island of St. Kitts; West Indies (introduced).

Genl. Char. No white brow-band; hairs on cheeks radiating from a point.

Color. Face and ears black; top of head, upperparts of body, flanks and limbs to elbows and knees yellowish green, the hairs gray at base and ringed with black and yellow; forearms and legs from knee gray; hairs ringed with white or yellowish white and black; cheeks, sides of neck in front of ears, chin, throat, and underparts, and inner side of limbs white; hands and feet blackish gray; tail grayish green for two-thirds the length, the hairs brownish black ringed with yellow, and tipped with yellowish, remainder yellow. Ex I. Geoffroy's supposed type in Paris Museum.

Measurements. Total length, 1.308; tail, 762; foot, 152.4. Skull: Total length, 117; occipito-nasal length, 92; Hensel, 88; zygomatic width, 79; intertemporal width, 42; palatal length, 52; breadth of braincase, 54; median length of nasals, 17; length of upper molar series, 29; length of mandible, 80; length of lower molar series, 37.

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